R. Clark. No 24.

Lecture 11th

Gent. — At our last Lecture I divided the Faculties of the mind into Memory Immagination understanding and will — Perceptive & Moral Faculties the last can subdivided into Sense of Duty Conscience and Moral Security Strictly so called —

I Memory is one of the most wonderful ~~faculties~~ of the mental Faculties, without it the others are useless — Dr. Reed very Justly observes if the Phenomena of memory were not so familiar to us we should be as much at a loss to comprehend how it were possible for us to know the events which occured 20 years ago, as it now is for us to conceive of Prescience one the attributes of Deity — Memory is of two kinds active or ready and retentive. The Latter characterizes the mere Scholar and the man of Genius possesses both — Memory commences at a very early period of our lifes — Shake Speare the Philosopher of Nature places its origin at about the third year — hence in his tempest he makes Prospero ask his daughter Miranda who was cast on the Enchanted Island

at 3 years of age whether she recollects any thing of her native Country -

" By what? by any other Name or Person
Of any thing the Image - like me
That hath kept in thy remembrance -

This faculty is very much excited in the first years of life - Infants have much to acquire in their first years - they learn not only a language consisting of an immense number of words - but also the Ideas which these words convey and the things of wh they are the names hence Dr. Gregory very happily and truly asserts that a child acquires more knowledge in the first 3 years of its life than in 30 years after words - memory distinguishes the Philosopher from the mere learned man - Civilization has a powerfull influence on their faculty - Indians for Instance possess it in a very limited degree - their method of treating with their enemies - shews us an example of this limited memories - they arrange them selves in a row when they are to hear a speech or treaty read so close that they can touch each other - when one of them has heard as ~~much as~~ a few words as many as

he supposes he will satiate his memory he
reads ~~the other~~ his next Neighbor and he repeats
the same passage - this is repeated till the Sermon
is concluded - they then meet and club their
knowledge from which they bind their answer
Some Savages we are told have so bad memo-
ories that they can never count a greater
number than they have fingers and toes - Tulve-
tius even tells us of some Savages incapable
of counting more than three - Memory is
of 4 distinct kinds viz memory of words
of Numbers. of Names & of Ideas - Children
and Players possess the memory of words to a
great degree - Dr Charcome informs us of a
young Corsican who repeated a discourse after
hearing Lord H only once read which consisted
of 36 000 words

Cyrus ~~was said~~ had a most amazing memory
for names his army consisted of 100,000 men
and he could call every man in it by his proper
name - with respect to memory for numbers
numerous instances are recollected where this was
possessed in a most remarkable degree - among others
Jedediah Buxton and Thomas Fuller are famous

for

for the memory of numbers - the former of these after hearing a long sermon told the number of words which it contained - the other can in his own head (to use a vulgar Phrase) multiply 12 figures in 12 or any number included -

Memory for Ideas is by far the most useful of the 4 species - this is the sense of memory which distinguishes a philosopher from a man of learning - few people possess to a considerable degree all 4 kinds of memory - Dr Lardner when memory for Ideas was very accurate - forgot his own name - and the celebrated Linnaeus when he recovered from a fit of apoplexy forgot the maiden name of his wife - I know a gentleman in this country whose memory for Ideas is very compleat whose memory for words is quite the reverse - we shall enlarge upon this when we come to treat of the diseases of memory - — Immagination is a peculiar faculty differing from memory 1 because memory has only relation to the past while immagination is unlimited as to time past present and future are laid open to it 2ndly immagination has for its object real as well as immaginary circumstances 3d Memory is a Magazine a ware house of the mind memory may be compared to history

Imagination to painting or memory
may be compared to a Ship moved entirely
by oars - Imagination to a vessel moved
by Sails and oars - Imagination is the
Pioneer to all useful discoveries - in the
arts and Sciences except such as are
discovered by accident It is Gentlemen a
Christopher Columbus for discoveries -
The Profession of this faculty encroaches on
matter of the attributes of Deity, Omnipotence
it differs with respect to its objects - in Sir
Isaac Newton it objects were the material
world - Laws of Matter and works of Nature
in Mr Locke its object was the faculties and
operations of the human mind - In the
Immortal Shakespear men & Manners all
the Occupations Passions ~~Grievances~~ Business
of Man the nature of his heart &c &c -
Imagination is an indispensable ingredi-
ent in Genius and in the arts and
Sciences of great utility -
What is the difference between fancy &
imagination? according to Dr. Stewart
the difference is great - Fancy he says
enables a poet to render his Images such a

Luxuriant - Imagination only supplies him
with the Images sublime and beautifull - they
suppose further in their objects than of fancy as
~~Phantoms~~ or fantasms ~~or like~~ ghosts hobgoblins
and the like - than of Imagination ~~than~~
the equally false not so impossible and unnatural

Understanding, according to Locke the other faculties
are subservient to this, the Imagination furnishes
us with Ideas - the Understanding connects them

the understanding is the seat of reason and judgment
it is the Touch stone of truth and error - to carry
on our comparison of the Ship memory may
be compared to the Cargo - Imagination to the
rudder and the understanding to the skillfull Pilot who
conducts them to port -

Will by this faculty we are enabled to Choose that
what is good and refuse what is evil - the will is
the seat of Power and the Basis of human happiness
this determines whether an action be right or wrong

the 6 Say if a man put his Neighbors Eye
by accident he commits no crime but if in a fit
of anger or ill-wantonly he commits that act
he is criminal hence the Schoolmen tell
us "Voluntas facit peccatum" the doctrine

Nature of Imagery – Memory may be compared to a house Imagination to the magnificent ~~builder~~ furniture of it thrown into a pile – the wise to a skillfull artist who arranges the furniture in such a manner as to continue elegance with convenience or to continue our comparison of the Ship which is now owned in port the wise is the boat ~~to carry the~~ which brings the Cargo on Shore –

Passions are divided into Passions properly so called and Emotions the seat of them is the heart they are to the mind what the Sinews are to the body – the Passions are again divided into Passions & Prehensatics –

Passions differ from Emotions by being accompanied by desire – ~~Fear is not~~ or aversion wt. the Latter are not thus Love is accompanied with desire, Fear is not some of the Emmotions as anger appear to be accompanied with desire of revenge but this is unconnected with the Emotion of anger

The Passions are Joy, Grief, Love Avarice hatred and the like - Emotions more sudden as Danger Fear &c - &c -

Moral Faculties these are included under one head are 3 in number to wit, Moral Faculty properly so called - Sense of Deity and Conscience they exist at birth and are unfolded as they receive impressions - 1st Moral faculty may be aptly compared to a Legislator. Conscience to a Judge - the first condemns others actions the latter our own 2nd we have proofs of the exertions of moral faculty independent of Conscience - 3d Moral Faculty may be compared to the understanding - Conscience to the will - Sense of Deity exists in every human mind Savages Papuas &c A certain evidence of a first great Cause no man ever did dispute or deny. and this is certainly a sense of Deity - in this man differs from all other animals - many animals possess the other faculties of the mind - but this belongs to man alone - Moral Faculty even belongs to some animals. witness the shame wh a dog expresses after having committed a fault and his penitent

Sentiment Cook - but no animal but man has any notion of Deity - hence the only rational Definition of man which has ever been given is "a Creature capable of Religion - It spirits must in rendering Man a Sociable animal - we could as readily be happy without Society as without this Sense of Deity - I said no man ever existed without a Sense of Deity Capt Cook has made an objection to this he has seen Savages who did not possess it but it is a fact wh obtains so Generally that I am desposed to think Capt Cook was deceived - whether it be manifested in worshipping an Image, the Sun moon or Stars - a Cat or a dog, a bull, a Crocodile, or even an Onion Still I repeat it again every man Possesses a Sense of Deity tho obscured by Superstition - you might with as much propriety object to the universality of vision because a nation of Africans have them perverted as dont the universality of ye sense of Deity from the perversion of it -

There are 7 Classes of Worship paid to this Deity 1st the worship of particular winds

and

Islands 2nd Worship of a bad 3d - Worship of a bad Spirit ~~4 of a compound~~ 4 a compound of a good and bad Spirit - 5th a number of good and evil Spirits - 6 one good and one evil Spirit 7th the true God - Man rises at length to the worship of the Proper deity - he has no need for the universal homage of mankind but by a revelation to same has imparted ~~the~~ & knowledge of the proper object of worship - From revelation not tradition all worship is derived - even that of the most barbarous nations originated in revelation, much corrupted by Tradition - as well could I conceive of hearing without sound as a sense of Deity from any other source than revelation Conscience is our Regula. Regulata non Regulans the only Judge of the propriety or impropriety of our actions - never was an absence of Conscience known from a human being. unless such as St Paul says have it seared with a hot Iron - Conscience is the high Court of Error and ~~[illegible]~~ pleas and appeals of the mind - the other faculties are regulated by it in Conscience we perhaps one of the greatest blessings the supreme being could have bestowed on us - his

con

one of us is turned 1st in the member of our Moral faculties 2ndly in rendering mental happiness independent of the other mental faculties So that the wisest men are not the happiest men as would be the case of mental happiness consisted in the perfection of the other faculties - the rational faculties were given us for this world. the moral faculties appear to be designed for that to come our Ideas of right and wrong are derived from the moral faculties - Conscience acts instantaneously the other faculties act slowly in Consequence the first decision is always the best in the Rational faculties. Second thoughts are most accurate - Conscience like Mentor in the fable of Telamachus is one guard against a thousand dangers to which we are exposed - Life has been compared to a Voyage the moral faculties are Compass and the Sense of Duty is our Pilot who guides us to the destined port. the Sense of Deity is co existent with our life - as well might we say the Passions of the Sexes for each other was founded at puberty because it appears at that age; as

Suppose the Sense, of Deity not coexistant with existence both of them co exist and are put in action in a more advanced periods of Life Conscience is given us as a witness, of the allmighty " he will not leave man without a witness on earth, it is the light which enlightneth ~~the world~~ every man who cometh into the world — however unfashionable a doctrine it may be it is a most true Philosophy — as much so as light is the medium of Vision — for God has made no part of his works in vain or for waste — before I dismiss this Subject I will propose the following Queries, are there any other Faculties than those we are allready acquainted with wh are quiesent in the mind? I answer I believe there are — do not the alterations wh they undergo (with wh we are allready acquainted) afford an argument in favor of this opinion & may not our knowledge in a future state be acquired by means of new faculties and senses and may not these last be the means by wh we are to acquire new funds of Pleasure & happiness in a future state — & all the faculties of the mind I have thus discussed are connected with each other more or less — they may be compared to a well regulated

well regulated government in which memory may be supposed to be the house of representatives where evidence and facts are collected - the understanding the senate which has the power of enacting Laws - The moral faculties may be compared to a court of Justice where these laws are imposed and with the Justice or Supreme executive whose Deputies are the Passions - the sense of Duty may be considered the Court of Errors and appeals - - I have thus described Ignr the mind in health and perfection. Folly and madness result from imperfection disease of the brain or its seat - in them I shall treat in the Pathology - and now pass to the operation of the faculties - they are Perception Association Judgment and reason you will recollect them and their order by the word Paix wh contains their Initials - Perception is the most simple act of the mind it is the effect of impression through the medium of the senses e.g. if I place my hand rashly accident upon a heated stove perception of Pain from the heat is the simplest and first operation of the mind

mind

mind — this result of this Perception Locke calls Idea Descartes supposed Ideas only images found of objects as a house an horse &c — Bishop Berkley supposed the Idea to be a mere deception from our senses — and that there were absolutely no objects in nature — when this Hypothesis had made a noise in the world Buffoon broached a theory very different and agreed that every thing in nature was a sublimized spirit when human folly had thus got as every one supposed to its highest pitch Hume published his essay on the human mind and called it in question both the existence of spirit and matter — thus Gentlm among these 3 Philosophers we should be annihilated the one destroying body the other soul — excuse this short account of the chimeras of madmen — who attempt to reform the world — every Idea in our mind is supposed the effect of impressions made through the medium of the senses and lodged in the Brain is or vox or else made through the medium of Immagination this inference is false from the texture of the brain wh is incapable of receiving impressions of substance as vox

and 2nd from our being able to form Ideas of things having no figure as heat cold &c

3d our Immagination is different at different times of the same things or Substances

* Ideas therefore are not Substances but mere qualities as much so as as Sound - hence we comprehend the vast extent of memory - infact it may be infinite for Ideas can never produce a plethora than words can fill a room!

I divide Human knowledge into two kinds, 1st Ideas of knowable substances 2d A mixture of Sensation and Idea what is what Mr. Reid calls Notions or thoughts - Ideas are then produced by some motion in the brain as well as Sensation a mixture of this motion constitutes *notion (or association)

2nd Association is a combination of memory with a perception - we have a perception of this stone - tomorrow at looking at the the perception a memory of having before both are excited in the brain at the same time and association is the consequence - thus also we are able to associate Ideas of things we have never seen heard tasted or smelt or felt. for instance when we hear of a great hero with out associa-

tion

ing the name of Buonaparte

or who can hear of Lord great Physician without thinking of Cullen Sydenham &c -

Place - Reflections & association with respect to place you stood when the first Idea was excited thus by looking steadily at a Sign in the clock you can sometimes recollect the name on it wh you were puzzled to see before - 2nd Time with respect to time - the time of day exerts an influence on association - thus if an Idea struck me yesterday morning when the Clock struck 7 it would probably have been repeated this morning if I had been there placed in a similar situation as to Locality 3rdly the Particular Position of the Body influences association - it would be well if you wish to recall a lost Idea to put your self into the same position of body in wh you were when the Idea first occurred to you - our time being exposed to enumerate ye other causes wh effect association at our next Lecture -

* "What is Thought? Forever a motion in

the Brain — what produces it? Stimulus —
how does stimulus produce thought? I answer
by producing impression on the nerves wh
produce action on these parts of the brain wh
are the seats of memory imagination & Lund-
erstanding — Ideas are therefore qualities
as much as a sound from a bell —

Lecture 12th

Fourthly Fear has a very remarkable influence on association — hence Women in a dispute with respect to any assurance always refer to the pain they suffered in Child bed — they have been called Living Almanacks — hence boys are also whipped at Land marks to make them capable of giving evidence at a future day of the fact —

5thly Letters are a kind of association I knew a Gentleman Student of medicine, who could never recollect whether the Umbilical Chord contained two veins or two Arteries untill he associated the Idea of it with Dr. Boerhaves name which contains 2 a. a. & but one r. —

6th by being connected with Pleasure — this you must all know instances of —

7thly Certain arbitrary Signs are of use in associating Ideas — thus a thread tied round the finger will always recall the Idea you had at the time

Time

8th Similar

8thly similar sound recall ideas - thus the Swiss are melancholly when they hear a certain tune Played (as it recalls the ideas of Past Sorrows -) and 9thly words are remarkable Spheres of Association exists between words - if I hear for instance the first line of a ~~Poem~~ Poem I am able to repeat all the subsequent ones - some persons from Association are strangely affected at the pronunciation of certain words - I knew a Gentleman who had formaly been at the terrible Earth quake at Lisbon who was seized with great horror at the Pronunciation of the word Earth quake the word blood had a similar influence on an English Gentleman at Liverpool he was seized with a fainting when ever it was pronounced - one time in particular being invited to dine out with a party of Gentlm among whom was a Colonel Tarlton a Hero during the revolutionary war - after dinner in the course of conversation Col. T. being asked about an engagement in wh he was concerned (tho Previously cautioned against mentioning this word) he unfortunately observed there was much blood shed there - the Gentlm instantly fell back from his Chair and fainted - a boy was affected in like manner at the Pronunciation of the word Jesus as he associated that word with the idea of a

most dreadfull thunder storm during wh he heard his mother pronounce that awfull word, at the moment she was struck with Lightning. — 10th words which have no immediate connexion with the Idea or event and yet resemble it in some Particularities — thus a Person who formerly lived in this City by the name of Alexander Alexander was sought after by a man who forgot his name he accosted a man and asked him if he knew a person such as he described but whose name he forgot "it was something like Paint no Paint" the man instantly recollected Alexander, Alexander who ever after went by the name of Paint no Paint

11th Certain degrees of heat & Cold, or temperature exert an influence an association — thus the first warm day in winter gives us an Idea of Spring and all its enjoyments — This is a most pleasing sensation I have excited it a hundred times

12th Customs has a powerfull influence —

13th interest. The miser never forgets the place where he deposits his money.

3. Judgment, may be defined a continued and combined exercise of understanding and memory

memory. perhaps the word combination would apply more properly it consists in making and one simple pronunciation from two or more Ideas acquired either by apprehension or directly from the memory. for example if I am called to see a Patient in a Jail or board a prison Ship and if I find him labouring under symptoms wh a number more of his companions have in common wt him & if I suppose the disease in all probability from the same cause. Contagion this I say is an act of Judgment. the Ideas excited in my mind are such as to make me suppose contagion to be the cause I exert my Judgment in this case — a difference however between reason & Judgment may be defined

An instance of the ~~Judgment may be defined~~ first as I just observed occurs ~~However~~ from two or more Ideas one proposition is formed —

4th Reason may be said to consist in deducing principles from Ideas — for example I see the application of cold air of service in the small Pox and if I suppose (knowing fever to be the same in all diseases) that cold air would be of service in the yellow fever or Bilious fever I exercise my reasoning power — from several propositions I deduce one principle

the

— the 1st is that Cold air is of use in Small Pox — the 2nd that Small Pox and yellow fever are both Diseases of an inflamatory kind 3d — that the operation of Cold being Debative will be usefull in all inflamatory diseases from thence Judge that cold air will be usefull in yellow fever — The difference in the capacity for exciting the faculties understanding and memory forms the difference in the reasoning powers — it exists independantly of the other operations Perception and apprehension without Judgment — Fools have them both and no Judgment mad men have Perception & very remarkable apprehension — A Madman will discover likeness between Persons whom he has known and those among whom he is which would never have occurd to a Sensible person — yet this madman does not have Judgment again there may be Judgment without reasoning (you advert to the distinction just made between them)

Besides the above enumerated Faculties and operations there are a few subordinate ones which I shall proceed to mention 1st

1st Genius consists in sudden efforts of the mind
— Some what similar the last described excepting
that they are much more rapid — Genius flies thro
— ugh the air while reason and Judgment travel ~~slow~~
slowly on foot — Genius is more Irregular than
the latter they are slow and sure — Genius is
more balanced — Genius apperates with respect
to Ideas not related — reason only upon such as
are related. the latter rejects such as are false &
admits such as are true — Genius is certainly
entitled to a place among the faculties of
ye mind it might be called Intuition
Genius has by some been confounded with com—
mon sense — Reid has fallen into this Error
common sense differs from Genius very widely

2nd What is Taste? I answer it is
a faculty by ~~wh~~ the apperations of wh we
are able without the aid of Judgment to con—
clude about the ~~propriety~~ Propriety or impropri—
ety of any thing I say exclusively of Judgment
or reason — Some have supposed taste to depend
upon these but it apperates Instantaneously
from

from our account of Judgment it will be seen that it requires time — Reason is one of the characteristic distinctions between Man and the brute — I say one for some animals beside Man appear to possess it — the "Sense of Deity" as I before observed is the only infalable distinction —

Taste I would define this to be a distinct faculty of the mind a sudden perception of propriety and impropriety — it acts independant (as I before observed) of Judgment but not unconnectedly — hence they have been confounded — but you might with as much Propriety confound moral Faculty and Conscience for they act in as much unison with each other as Taste and Judgt

In treating of the Faculties and operations of the mind the influence of the Passions should not be over looked — They are great stimuli to genius — they are to the mind what the senses are to the body —

I shall next proceed to the remaining Opperations —

1st Attention — is the continued application of the mind to one Subject

it is the first opperation after perception

2ndly Reflection is the application of the mind to the particular properties and qualities of one Particular Object and Subject differs from

3d Contemplation in as much as the latter respects a number of objects or Subjects —

Men of moderate abilities possess the former — but to men of greatest Tallents the latter exclusively belongs — Bacon, Newton & Locke were Contemplative Characters —

4th — Wit is a very quick opperation of the mind — accompanied with very sudden quick perception — the Ideas are either similar or else quite the Contrary and please by contrast and may be defined a rapid assemblage of Ideas or images — that excite pleasure either by their remarkable similarity or total want of similarity

The Strength and Perfections, Nay the very quantity of the above faculties of the mind depends very much on education — — —

Neither Judgment or Reason, with reverence I speak it belongs to Deity — it

wanes —

would detract from a knowledge of his Prescience to suppose he has accasion for Either — &c

5th. Volition is an alteration of the mind does a man act necessarily? or as a free agent? This is a thorny question and has been much agitated by philosophers - I believe gentlemen that both are true - I believe man to act necessarily or it would destroy the prescience of ye Deity & I do believe him to act as a free agent or it would destroy all responsibility on his part for his actions wh. I do not think to be the case —

With this Gent.n I conclude the Physiology of the mind - permit me to recommend the Study of it to you all - all the works of the Deity are as dust compared with the human mind - I might conclude the subject with the words of the Royal Psalmist "All things shall wax old and decay but thou shalt endure forever" So unchangeable did he suppose the human

mind

I proceed next gentlemen to treat of the pleasures derived from the senses and the mind - let me first however premise that - Pain is the natural state of man - as the absence of stimulus is death so the absence of sensation is pain - hence people endeavour continually to experience sensations of some kind - this some excite by that nauseous loathsome weed called Tobacco - some by habitual use of ardent spirit - some by strong Coffee Opium &c — however pain is the natural state it is not necessarily so - Pleasure in Civilized life for preponderates over Pain tho in a Savage state I believe pain predominates - the first sensations wh we receive I believe to be allways painfull - the Pain wh a new born infant expresses by crying I suppose to arise from the stimulating effects of the air wh excites inflamation on its skin - Dr Worthy is of this opinion - he observes that sounds wh are pleasant to us were originally painfull and urges as an instance the playing a tune to a child 8 or 9 months old wh will infalibly set it crying - these painfull sensations become pleasant by repetition of wh more here after

Proceed to the Proximate cause of pleasure of ye ~~Sensations~~ Senses this subject will be interesting and I trust usefull for Pleasant Sensations certainly form a part of the material Medica — first of the pleasures of the Senses of touch — the first of these which I shall notice is a certain feeling wh is perceivable in perfect health - called the Pleasure of Self feeling

The 2nd Pleasure of ye Sense of touch arises from the contact of the Sexes - this is divided into 3 Sheives - 1st the Commence of ye Sexes 2nd the act of Kissing - 3d from the contact of the Skin in any part of the body this Latter is very pleasing - Hence the Italian Painter Amasto in his beautifull & justly admired Painting of Angelica and Medoro paints them in the following manner - Angelica is Seated on a verdant turf Medoro with one of his hands Squeezeing gently one of hers while with the other, he points and requests her to look at her name wh he has carved on the Bark of a tree, his knees are placed in contact with hers — Sir Joshua Reynolds upon seeing this picture was so struck with the Justness

Justness of the Idea that he declared that he would have given a thousand guineas to have been the author of the thought —

3ordly a certain temperature of the air wh perhaps varies at different periods of Life — this state of the Atmosphere does not very frequently occur — in Italy it is perhaps the most common of any place on the world — hence travellers passing through Italy describe the raptures they feel from the climate of that country — in England it some time occurs during the Spring months — I think I have experienced it in this City in the month of June — Pleasure too is experienced from a greater degree of heat — such as is felt in standing before the fire — an other mode in wh air may act perhaps is by the pure air it affords to the lungs — this is accompanied wth an agreeable warmth — as those who breathe dephlogisticated* air in form us (*this is Dr. P. term for pure air)

Dr. Beddoes has proven that this sensation may be heightened to Rapture by respiring Dephlogisticated Nitrous air —

4th The sensations produced by the warm Bath — this was well known to the inhabitants of ancient Rome to increase plea

ye pleasure of it they same times bathed in warm oil — the estimation in wh this was held may be judged of from the costliness of ye Baths made use of — some of wh were Silver and ornamented very highly — The Late Dr Franklin eased his passage out of Life by means of warm bathing he stent whole hours in the latter part of his life in his bath it composed him to sleep in many instances

5th Certain Motions of the body + the pleasures resulting from certain motions of the body are to be attributed to the sense of Touch — among these are dancing — rocking — swinging — walking after a long rest &c — I might here mention the Chorsame men experience more pleasure by ye Chor than any other way — whence they derive their Pleasures I confess I can not say. Can it be from the Cold air bracing them up as it were? Hunting is usually in cold weather and in the coldest part of the day viz early in the morning — can it be from ye sound of the Horn. the cry of the hounds? this may have some effect in exhilerateing their Spirits — or is it not rather from ye knowledge of ye frequent escapes they have from

accident

accident and Death? This is most probable
it is what the Indians call the Joy of fear after a
battle in wh they faced great danger they expe-
rience this Joy and give it this name —
It cant be possible that men can join in the ple-
asure wh their hounds have over so contemptable
harmless an animal as ~~a hare~~ they Pursue —.
under this head too I may mention ye pleasure of
Sailing both on water and in ye air — Balloons
I hope will one day become the common mode of
conveyance — Mr Blanchard the famous
informed me the pleasure is indescribable — they may
become gentlemen an article in our Materia Med
ica in diseases of moderate action — they will not
be liable to the inconvenience of Sailing on water
6thly a Sixth Source of the pleasure to the Sense of
Touch are certain medicine taken into the Stomach
as 1st after a dose of Opium — this persons describe as a
pleasing Sensation — 2nd Stramonium, this
is the common James Townweed — it is used in
the east Indies as Coffee — 3rd Tea — 4th West india
Coffee 5th Tobacco — 6th ardent Spirits & wine
7th a Sudden relief from Pain is a Source

is a Source of great pleasure - hence Women who have been in Child bed. speak in raptures of the Pleasures they enjoy after delivery they say "they are in heaven" ——

8th Certain soft Substances applied to the Skin gives a very pleasing Sensation as down fur Silk and the like - also a certain titillation on the Skin is a Source of pleasure to many such for instance of the gentle friction of a soft hand on the leg - this is a most pleasing Sensation to a sick person, as the combing the head for lice as it is usually termed ——

9thly Peculiar Ideosyncrasies of Dft people by wh they are able to derive pleasure - I knew a gentleman who experienced a great degree of pleasure when his arm was bound up previously to the operation of bleeding - similar cases of Pleasure from trifling sources of this kind now and then occur ——

Before I dismiss this subject I have to remark a kind of Nonnorthradetic pleasure - that of sleeping the cold air wh always is present when the Snow is on the ground - is an antagonist to yr pleasure

of the

to the pleasure of the Company and the excesses of the Sleigh - also the abstraction of all Stimuli from every Sense produces in Some cases great pleasure Darkness, Silence - want of Odors &c &c — This pleasure is to be ascribed to the Sense of feeling - how for the mind is concerned with it I will not ~~cant~~ Say —

I will here make an addition to the number of the Pleasures of ye Senses of feeling in which I am sure you will none of you anticipate me I mean the Pleasure of Dying! Strange as you may think it that to die is Pleasant it is no less a fact in many cases — The Agonies of death is a very common expression but it is not always a just one — Pain does not always accompany the extinction of Life —

Addison long ago Spoke of

"The Pain The bliss of Dying"

The Late Dr. William Hunter in his last moments addressed the following words to a friend at his bed side "I wish I had a pen and Ink and was able to write that I might describe my feelings and record how pleasant I think it is to die" General Butler who fell on the 4th of Novr. 1791 at Saint Clairs defeat, expressed his pleasure, by

Saying

"he did not expect. it was so pleasant and easy a thing to die — "I feel as if I were sinking into a pleasant and easy sleep" the placid countenances wh are observable on some persons who have died — which form a striking contrast to the frown and agony wh appears on some others denote sufficiently the pleasure they felt — perhaps in the prospect of a better world —

The Late Judge Hopkinson once told me of an Idea he formed of making a scale similar to a musical one in wh the degrees of pleasure arising from the application of certain substances to the skin should be marked — The Idea certainly was an ingenious one & might possibly be carried into effect —— The next subject for our consideration is the pleasure to be derived from the sense of Taste

Had our lives depended on reason for its support we should die from negligence — but nature has providently warned us of our danger by giving us the sense of hunger, when we neglect to provide food — the pleasures of this sense acquire action from hunger — hence we are able when urged by hunger to make

a

a hearty meal on food wh at other times would be very unpleasant — Habit makes many things agreeable to the taste wh was originally unpleasant — Thus Tobacco that most Loathsome weed becomes pleasant by habitually chewing it — hence also we explain the fact that Onions, Garlic &c become pleasant — hence yⁿ Olla Potrida of the Spaniards is palatable to the natives of that Country — hence the inhabitants of the Highlands of Scotland find a relish for their Onions — Hence the French sometimes season Beef Steaks with asa Foetida. —

To relate the simple objects of Taste would require a volume - not to mention their infinite varieties when compounded — the combination of acrid substances as vinegar. Pepper and other condiments become necessary to stimulate the appetite when it begins to flag — and also to increase the pleasure of taste — by increasing the sensability of the Tongue (its papillæ) — The Rhinoceros it is said accomplishes this purpose by licking thorn bushes before he attempts to eat —

I shall add to prove the pleasure of this sense the estimation in wh the pleasures of yⁿ table have

have allways been held - fortunes have been spent in the single article of good living - the pleasure of eating is increased by a concentration of sensation in the Tongue - it abstract it from other senses -

Dr Blackmore relates a case of a patient of his who had an inflamation of his Eyes &c if not brought on by good living was atleast perpetuated by it and prevented from being cured the Dr at last told him of the danger he incurred of loosing his Eyes unless he abstained somewhat from his intemperance in eating - he replied - " he replied I have seen enough Doctor, but I have not eat enough therefore I will eat on at the expence of my Eyes sight" - a person in London who had once been better days was beggared - he asked alms of a former Friend who gave him a guinea - he was hungry went off to a cook shop and expended the whole of his guinea out half a crown for a cucumber - with this half crown he purchased a beef steake and made one hearty sumptuous meal -

Neat is necessary for the pleasures of this sense - Cold substances lose much of their

Rapidity

Sobriety — I will dismiss this subject by observeing that had the French instead of Depopulating all Europe with their cooks been employed in their Kitchens perhaps fresh articles of Delicacy for our dishes they would have rendered a much more essential service to mankind for I am persuaded many delicacies of this kind remain to be discovered —

Lecture 13th —

I shall next notice the pleasures to be derived from the sense of smelling —

every hill every vale every rivulets shore affords pleasure the medium of this sense — there is something like joy in the smell of the Magnolia and ~~tenor~~ tenor in that of the rose and Pink — after these rank the Jessamin the Jonquil — the sweet scented Shrub of Carolina wh portakes of the smell of the pine apple and the strawberry — odours heavenly mixture — contrast contributes in an amazeing degree to the pleasurable effects this after smelling asfa Foetida and the like odors the scent of the rose is infinitely more delightfull — Moisture contributes to render odors agreeable hence in the morning & evening when the dew

Dew is on the Ground flowers smell much sweeter than in the middle of the day —
It would seem as if Nature intended that even the gratification of this sense was to be purchased by ~~man~~ the Labor of man. ——
I lovers always derive fresh pleasure from Transplantation — the effects of Cultivation on them is truly surprising —
This sense like the others is liable to become ~~[illegible]~~ perverted — hence some people delight in the smell of Tobacco asafoetida rattlesnake and the most disagreeable odors —
The nose may be made the medium for the exhibition of Medicine — I have distributed of the medical virtues of the Country air to (in many diseases) To the fragrance of the flowers
We come next to consider the pleasures derived from vision ——
Where shall I begin the pleasures we enjoy from this sense? or where shall I find Language adequate to describe them — Scarce an object exists in nature but may be capable of pleasuring our Eye Sight — Color figure magnitude length and motion all combine to afford pleasure to this sense yet

1st - Light it self is a most pleasing sensation

Milton described the pleasures derived from the beams of the Moon broken into small shaddows - 2nd Color many and various are the pleasures we receive from this source - the Azure blue of the Sky the green of the Earth are peculiarly agreeable the red orong Violet and White afford so much pleasure like sounds they are related to each other - in different textures different Colors please best - White and red in the human face - in Metal a yellow color pleases best - this has been explained upon the Supposition of the Association of the value of gold with the Idea of Color but this I deny - give an Indian who has never seen a piece of money in his life a piece of silver and a piece of gold he will take the gold in preference - White next in order among the metals - he will prefer Silver to Copper - variety in Color is agreeable - hence the various hues of the rain bow - Colors I said are related - they have a greater or lesser affinity with each other hence the pleasure - "such an one dresses with art" A only means that some gentleman or Lady

Lady wears colors wh suit their complexions - it has very little dependance on the fashions of the Cloathes 3d We derive much pleasure from figure - according to Hogarth figure pleases in proportion as what he denominates the ~~Curve~~ Line of Beauty occurs in it more or less frequently it is a particular it is a particular curved line wh occurs most frequently in the human figure hence a man is the handsomest animal in creation - next the horse - hence too we feel much more pleasure in viewing a Cupola or Steeple than Manor house - the line of beauty occurring much more frequently in the former than in the latter a Room is always handsomer for this circumstance - the famous Statue of Venus de Medicis owes its fame to the frequent occurrence of this line of Beauty - 4th Gentle motion - the nodding forest the waving corn field the gentle hurling stream" all afford us most pleasing sensations motion to please must be slow - Milton well knew this fact hence he discribed the Angel in Eden, as" Slow moveing without step" hence the pleasure we feel in viewing a country dance - this has two reasons for pleasing

pleasing 1st the slow motion & 2d the motion is in a line of beauty — 5thly height Distance and Magnitude so frequently united strike us with pleasure — extravigant pleasure, like grief strikes us dumb — a Lady who with great perseverence had gaind the top of ~~a~~ mountain Blanch in Switzerland whence she had a prospect 60 Miles beneath her eye villages Castles towers and Mountains rising over mountains clad with forests — was so struck with awe at the Prospect that she fainted away — Mr Bruce describes the awful Pleasureable sensations excited in his mind by the eruption of Mount ~~Etna~~ Aetna wh casts a light for 100 Miles — Mr Bruce Describes too the awe with wh he viewed the immense Cataracts of ye Nile — he forgot for a while all the dangers and difficulties he had encountered and felt fixed and motionless on the ground where he stood — he allmost forgot the promise of ye almighty and thought the destruction of ye world was again begun by water — the spirit of Queen Sheba died within her when she beheld the magnificence of ye temple of King Sollomon — Height uncombined with magnitude imports pleasure hence the pleasure we derive from looking at the moon and heavenly bodies — the habit has detracted much

from this pleasure

Pleasure — Hence also the Eagerness with wh people look at the ascension of a balloon into the higher regions of the atmosphere — combination of color & motion add much to the pleasure we enjoy in looking at distant objects wh. possesses both these properties as a flag on a mast head — what can be more sublime than the prospect of a Sea agitated by Tempest viewed from ye Shore? —

6th Ly Contrast adds much to the pleasures of seeing hence Lord Kaimes observes "tho a garden in a forrest should be perfectly regular" but in a City wild as possible — Mr. Niemsiwiche aide de camp to General Kosciusko informd me when in this City that the sight of Green leaf gave him ye greatest pleasure he had experienced from looking at any object immediately after being set at Liberty from a confinement of two years in a Jail at Petersburgh where he beheld nothing but the black walls of his prision for that space of time — I shall conclude this subject with a few lines from Mr Gray

Pleasures of hearing - from our entrance into the world we are besieged with pleasure from this sense - perhaps no sound can possibly be more pleasing than the human voice the habit has rendered us almost insensible to its charms our mothers voice is the first sound we hear - and nothing pleases us more Publick Speakers I am persuaded charm as much with the melody of their voices as by their Eloquence

Such are powers of Music both vocal and Instrumental that the heathen Poets tell us hell has been made to open its gates and render up its Prisoners by the powers of Music - and we are taught by revelation that the gratification of this sense will form a part of the happiness of a future state were I in want of arguments to prove the charms of music I might mention the enormous sum lavished in gratifying the Ear - Count Orinske a Polish Nobleman spends annually £25,000 in musical instruments - Innumerable are the sounds wh salute our ears the winds the feathered tribe the lowing of cattle Bleating of Sheep - the hum of Bees the murmuring of streams over pebbles all afford pleasure to this sense a fresh proof Gentlemen that Deity never intended pain to predominate over pleasure or evil over good I cannot prove this Gentlemen better than by authority from Dr Price if.

evil

" if evil were intended to predominate over good every animal in creation would annoy without apprizing us — the light of day would have dazzled without comforting us — the Earth would produce nothing spontaneously — every vegetable would be Poison — the fire would scorch without warming us — the sound of musical Instruments would torture instead of pleasuring us — in a word every taste would have been a bitter — every sound a Scream — — much Gentlemen has been said about the equal right of man — how for nature intended man to be an equal thy in other respects I will not undertake to say but in the distribution of Senses he has certainly been no respecter of Persons — The hungry beggar that lives at the gate of a rich mans Kitchen feels as much pleasure with the offalls of his table as a King who dines at the most sumptuous table the Negro perceives as much pleasure from the Coarse sounds of banjo as a nobleman at the most expensive concert — we do injustice to heaven to suppose our evils proceed from the fountain of good — they are derived not from God but from the folly and wickedness of man! when I treated of sensation I observed that some are increased others dim

diminished by repetition this I now repeat on other part I then mentioned is "that no two sensations of equal force can be coexistent

An Ignorance of this Law of Sensation has led the votaries for Sensual Gratification -- to enjoy several of the Sensations at once as music and Eating &c they are either engaged in succession or else from their combination a new Sensation results the same way as Green results from a yellow & blue color - With this Quotn we conclude the amount of the Pleasures of the Senses their final cause and use must be self evident - They are an great source of our happiness - but they have their alloys - 1st What are all the delicacies on earth to a man laboring under a fit of the gout? Good health is absolutely necessary for the enjoyment of the pleasures of the Senses - What - again - are all the vanity of color height distance magnitude figure and motion to a man a the afflicted with melancholly or Hypocondriasm? 2nd The Pleasures of Sensation too are of a limited

nature -

nature - too much of it fatigues the mind as Solomon long since truly observed

3dly they are connected with Pain — Pain and fatigue follow the too great enjoyment of sensual gratifications — no fatigue is so great as that from moderate pleasure

and Lastly all sensual pleasures are of short duration - allowing them to be enjoyed in the beginning of Life - old age comes on and impairs the relish for them - and the grave is finally the utter extinction of them this too is a wise precaution of the Creator and shews his goodness - by it men are excited to seek the more substantial and durable pleasures of the mind - of wh I shall first proceed to treat - I shall first treat of the pleasures to be derived from the faculties of the mind 2ndly of their final cause and 3dly of the Proximate cause of pleasure as derived from the senses and faculties of the mind - observing the same order as I have done

I have done in treating of the pleasures of Senses
first of ~~all~~ the pleasure to derived from Mem-
ory Memory - in the exercise of this faculty we live
as it were our lives over again - and enjoy in ad
age the Pleasures of our Youth - nor is this all
we are enabled by the happy exercise of this faculty to
converse with our absent friends to view all ye
wonderfull works of Nature and art in the most remote
parts of the Globe - We view by our fire side ye
Battles fought 1000 years ago - by the heroes of ant-
iquity as well as those of the present day -

Imagination Mr Akenside as well as Mr
Addison, has observed of this faculty that it endows
us with a Creative power at one time it exalts us
to the highest pitch of Millitary or Literary fame -
next it raises us to the pulpit where with all the graces
of Oratory we excite by our Eloquence the wonder &
astonishment of thousands - wh listen with rapture
to the accents of our voice at one time it wafts
us across the Ocean and enables us to view the count-
ries of all Europe - at another time it Situates us our
own Country making discourses of the highest impor
tance

importance to our Selves and an advancing world in a word by the imagination we are able to ride in Balloons and build Castles in the air!

Understanding the pleasures of understanding are of most Sublime nature and of the most delicate kind – to this faculty we are indebted for the pleasures of taste – Archimedes when he had Solved a difficult problem could not help exclaiming in the midst of a large company Urcha, Urcha! Dr Rittenhouse fainted away on observing the Transit of Venus over the Sun wh occurred in the year 1769 Lord Mansfield when he was engaged on the business of ye Bench declared that he never felt either hunger or thirst so entirely was his understanding engaged!

The pleasure of taste are said to be attributed to this source as that of the disposition of Colors in Painting – the three unite in Dramatic Pieces – order and arrangement of figgures in composition – in Short every subject in which taste is concerned appeals on the understanding – So exquisite are the sensations induced in this faculty as to cause fainting as was the Case of Mr

Rittenhouse

Rittenhouse — Octavia we are told — fainted on hearing the lines in Virgil's 6th Eneid wh foretold the future glory of her Son

— — — — — — — "Heu miserabile Puer Tu Marcellus eris &c &c —

Will The pleasures of Liberty that blessing for wh Oceans of Blood have been spilt are to be attributed to this faculty — So great is the pleasure induced by unexpected Liberty that an instance occurd in Ph fainting was induced by it — in a Negro Sold in the Delaware whom Master as soon as he purchased him gave him his Liberty the man fainted — ~~the man fainted~~ & was with difficulty recovered —

Passion it would require a volume to describe the pleasures we injoy by our Passions — even the most blameable of them as avarice and revenge — and the like have their Pleasures — but those of the nobler Passions are inexpressible — hope friendship and the like are exquisately Pleasureable while Love creates a little Heaven on Earth! —

Moral Faculties

Moral Faculties it would require a a

Pen ~~Plucked~~ made of a quill plucked from an Angels Wing to describe the pleasures resulting from this faculty - their nature is the most sublime ~~the~~ best, the highest we are capable of injoying

When we spoke of the senses we ~~spoke~~ took notice of them as being liable to perversion and urged as a proof of our assertion - that Asafoetida and other unpleasant odours become by the perversion of the sense of smelling Pleasant. - this is also the case with the Moral Faculty - in proof of it I urge the desire of revenge the many Papers - also the pleasure wc many people take in the Pain and torture of animals and even of their fellow Nature - Thus I heard of a Person who resided at Paris during the commencement of ye French revolution - who declared the most delightfull music he ever heard was the sound of ye Guilotine when employed, in cutting of the heads of 20 or 30 of his fellow Creatures a day - I heard of a member of the British Parlement who used to go in disguise to every execution in and about London for the purpose of getting as near as possible to the Gallows! It is probable that in agriculture the

The moral faculty are most perfectly engaged a taste for this employment seems to have been born with us - the war worn Soldier the Sea beaten Mariner, the Wealthy Citizen alike please themselves with a hope to end the troubles of this Life by cultivating a small Spot of Earth no enjoyment is more congenial to the Taste of Man I might (viz this Lecture take 1 or) under this head Take notice also of amusements as they are call Such as Cards dice and the like - Some of which are capable of affording the highest degree of Pleasure - Perhaps they are compounded of Pleasure from the sense & ye mind - Love is increased by dancing - Friend ship is injoyed over the Bottle &c -

Lecture 14th.

Having concluded our account of a few of the most common Pleasures of the senses and of the mind, I next proceed to treat of

of the Proximate cause of each — and first of the Proximate cause of the Pleasures of the senses — I will here deliver a proposition that motion is necessary for the sensations of touch taste smelling sight and hearing — and that motion is necessary for sensation — my next proposition is that pleasure consists in a limited regular and orderly Degree of the same impressions — which if greater in degree irregular and disorderly excite pain — Take notice of this proposition Gentlm for it forms a very ~~con~~ material part of the subject under consideration — I say too that those stimuli wh in excess excite pain do in a limited degree excite pleasure — There are 1st distention — 2nd Morbid action in a part 3rd Chemical and Mechanical stimuli applied to the part — The antients were well acquainted with the relationship wh exists between pleasure and pain in the fable of Socrates they are said to be two sisters — the are admired and courted whenever she went ~~away where the~~ the other hated and avoided by all mankind, Jupiter to put them both on a footing, ordained that who ever embraced one could not avoid partaking also of the other — the words of a well known song

give

give testimony of their affinity

" Those dear Eyes so Soft they Languish
" Fill my heart with Raptures heat
" Pleasure turns allmost to anguish
When the Transport is too Sweet —

Pleasure then consists in certain vibrations of the nerves wh are harmonious and regular and in a definite degree — Pain in a greater or less degree of those vibrations — or in an unharmonious order of them distention & Sand Produces pain — in a more moderate degree pleasure ~~is~~ the result — Opium produces a degree of distention in the vessels — and Opium produces a pleasing exhilleration of yt Spirits — also the warm bath — this is of a moderate temperature is highly pleasing — increase the temperature and pain is the conciquence — the warm bath acts by distention — also wine &c. &c —

2nd do certain motions of the body when exercise produce pain —? in moderate degree they are pleasing — what more pleasant than moderate exercise — does debility when exercise give us painful or unpleasant sensations? in a more moderate it is pleasing rest often Labor is very agreeable —

also the

also the sensations after child birth as we had occasion to observe before is highly pleasing — case from the Calcs and innumerable other instances might be adduced — Some sensations are pleasing to certain people — wh to others from a peculiar Idiosyncrasy are painfull — Thus I knew a gentleman in Edinburgh who had the sensation in his fingers so bare, if I may be allowed the expression that the contact of a soft substance wh would please any body else — was to him the most exquisit torture as bad as if laid on a bare nerve — I knew formerly a young man in this City who shrunk with horror at the touch of a peach —

4th — do the application of rough substances produce pain when applied to the surface of ye body? —

the application of smoothe surfaces is pleasant — by exciting an harmonous vibration of ye Nerves wh the rough ones were not capable of doing —

Is it not true that certain sensations are of a mixed nature partakeing both of pleasure & pain? of this kind are tickling in the soles of ye feet — certain stages of Hysteria — This depends in Hysteria on the predominence of the pleasing and unpleasant over each other — wh is alternate —

first the

first the Patient expires unassisted - then the most extravagant pleasure - the Pleasures of each of the Senses will require a Sheerfie explanation Mr Reid supposes the variety of tastes of Solid bodies depend on this mixture with the Saliva and Production of a "Tertium quid may not the variety of the other Sensation be produced in the Same way by certain mixtures of harmonious and unharmonious vibrations of the nerves of the part? Since we have Seen that mixture of ~~Blue~~ blue colours and yellow produce green - and that there are Sensations of ye Skin wh are both Pleasureable and Painfull - how does the humour face impart pleasure to our eyes but by the reflection of certain rays of Light exciting harmonious Vibrations in the nerves of the Retina? and how does deformity pain us but by reflecting rays of Light in an unharmonious order to our Eyes?-

thus I have compared ~~all~~ the ~~Sensation~~ operation of all ye Senses to those of the Ears - the analogy I think holds good in all the other Senses - Moller supposed there was an influx

of blood to

to the part denoting the action of the Organs of the Senses - this obtains in the act of Generation and perhaps in one or two others but it certainly does not in all ye actions of Sensation - In all the Pleasures that we mentioned to depend on relaxation - there is less blood then at other times - in a word then all all pleasure depends on the moderate - definite - orderly of impression - Pain on ye immoderate disorderly irregular ~~or~~ impressions both are qualities - but we have here one difficulty to encounter and that is that same sensations become stronger by repetition, while others lose their force - of the first we mentioned an instance is the dropping water on the head - of the 2nd Tobacco Opium. ardent Spirits afford us similar examples besides all pleasurey sensations lose their relish by repetition - these facts can only be explained by saying that it is the will of ye Creator that the part should be such - to make us seek the enjoyment to be derived from ye mind which are more durable from all that has been said we learn that pleasure is a mere quality or effect depending on the

similar

peculiar Organization of Animal matter wh
render it capable of receiving certain impressions
from stimuli when we were treating on the
senses we observed that certain sensations origin-
ally nauseous become pleasing from habit -
the cause of this I next proceed to explain -
I have said that pain depends on the excess-
ive action of pleasing stimuli or of imp-
ressions when moderate and in a certain order
produce pleasure - I have also said that strong
impressions by habit become weak - and vice
versa weak ones strong - now on this conver-
sion of strong to weak sensations depends the pleas-
ure derived from impressions wh at first were
nauseous as Tobacco Opium garlic & Olives -
these in 99 cases of 100, are all unpleasant
when first used but by repetition they act less
powerfully and consequently induce pleasure

From this view of the subject it seems
me truely philosophical to believe in the
pleasure wh people formerly took in view-
ing the fights of Gladiators and in the

delight

delight wh Tyrants feel in Shedding the blood of their fellow men - the intrepidity wh these Sights first had no doubt were painfull but by repetition are reduced down to the lowest attainable point - 2ndly pain from duration wears it self out - from this we see the reason why Women bear pain better than Men - because the stimulus of Pain wears it self out as it does sooner in women than in Men - their nerves sooner take a kind of Paralysis 3dly pleasures from duration becomes less pleasing - the pleasures of seeing, hearing, tasting smelling and feeling become less pleasing to us in old age - the fickleness of mankind is the cause of it - Solomon was well acquainted with this fact 4thly but one sensation can exist at the same time - hence we explain the fact why Martyrs feel no pain amidst the flames wh destroy them - the more powerfull sensations are those of their minds - and the corporal pain is not perceived - in the prospect of the Joys of a future

State -

Note — Venus too have been relieved by the presence of a friend from a fit of the tooth ache or other slight indispositions So that this is as useful truth to Christian-ity as to the Animal Oeconomy —

The final cause of the pleasures of Sensation are obvious - they prompt us to eat drink and propagate our Species — they invite us to view the works of our Creator of course to admire them and they ought to lead us to Eternal happiness Since they Show the falacy of all human enjoyments — let us next enquire into the proximate cause of the pleasures of the mind — The Immediate effect of the operations of the mind I took notice of in our lectures on Animal life —

Perfect Life we said consists in mutual action of Body on mind — and mind on the body 1st the Fatigue of the memory and imagination proves the action of the mind on the Brain — 2ndly it proves that the mind acts on the body, by the quick pulse hemorhages from the Lungs and more in affections of the mind - and the facts related in Mesmer's Animal Magnetism - —

3dly

3.ly Dejection of the Spirits, fainting and Hysteria prove that the mind acts on the nerves — The discharge of Urine from persons under the influence of fear, and of Bile from those under that of Anger, prove the effects of the mind on the alimentary canal, and on the stomach as vomiting and diarrhoea often accompany the increased secretion of Bile — but particular on the glandular System — the Liver and Kidneys secreting a greater quantity than usual — but to our immediate Subject the proximate cause of the pleasures of ye mind like those of senses — depends on Stimulus

The pleasures of the Mind depends on a harmonious order of vibrations excited in the brain as those of the senses on the nerves — Distention and Relaxation influence these vibrations of ye Brain in the same manner as of the nerves — Joy, Love, and other passions are evidently accompanied with distention — While probable in Hypochondriasis and some other diseases of the mind the brain is in a state of relaxation — The final Cause of the pleasure of the mind is-to-increase the activity of its faculties, and lead them to search for real happiness and true good

It is a

it is a folly for men to argue that the pleasures of the Senses aught not to be engaged - it is an Eternal and unchangeable Law of Nature that they should be

The Monk therefore who shut up his window which commanded a beautiful landscape committed a Sin against the Author of Nature

Repetition Blunts the excepine action of the apperceiveing of the mind in the same manner as of the Senses - a fond Mother who has lost a darling Child will not bear to see its grave for a twelve months but after some time will visit not only without pain but with highly pleasing tho' Melancholly Sensations

Thus Gent^n I have my account of the pleasures derived from the Senses and the Mind - I must observe here that repetition diminishes those of the mind in the same manner as those of the Senses - of the Senses I mentiond instances of Tobacco Rum garlic and becomeing agreeable from repetition - Instances of the effects on the mind I shall relate - An Ugly Woman has more charms to her Lover than a handsome one - at least the impressions made on a Man by an ugly Woman is much

more

more- observable, than that by an handsome one — the observation was first made by Labruyere and its justice I believe in firmly — The first question then that I would ask if considered on a love case would be is she handsome or ugley? if ugley little hopes — Doctor Worn relates a case of a Man to whom the Ideas of Death & Judgment were a Source of so much Horror, that he could not think of them without the most terrable emotions — this man over come it by retireing every evening and dedicating a portion of the evening to a consideration of this Subject — yr impressions by repetition became less forcable and in the course of time by persevereing he was able not only to think on it without pain but ~~with pleasure~~ it was one of yr greatest pleasures of his life the contemplation of this Subject — Is not this a strong argument in favor of our opinion that pain was never intended by the Supreme being to predominate over pleasure or evil over good? and is not the reason for our not enjoying perfect happiness here that we may be directed to the true Source of Happiness

& proceed

I proceed next Gent^r to consider the state of Sleep

Sleep - life we defined to consist of motion sensation and thought - there 3 circumstances obtain in the Waking State of the perfect animal - but in Sleep there is an absence of sensation and thought - Sleep is then to sensation what rest is to motion & darkness to light - Sleep has in one respect a tendency to Death - as it is attended with an absence of sensation and motion - It has tho' a tendency to Life as the excitability is increased by it and excitement equalized Sleep ever Naturally when the System is debilitated or reduced to what Dr Brown has happily called the Sleeping point - Cullen supposes this to consist in the collapse of ye Brain - during Sleep as I before said an equilibrium of excitement & excitability takes place - and Sleep never occurs either when the System is depressed below this Sleeping point - or when raised above it - this depends on the greater or less degree of Stimuli we have been exposed to through the day.

If we have been exposed to much fatigue we raise the excitement at the expense of excitability

and Sleep

and Sleep is necessary for the equilibrium - If ye System is below the Sleeping point Stimuli are necessary to raise it to it - as Opium Strong tea &c if it be raised beyond the Sleeping point it must be reduced to it by evacuations &c - the way in wh Sleepiness is produced in crowded assemblies depends I think on the debility induced by respiring Mephitized Air - The remote causes of Sleep - These are divided into such as raise the System to the Sleeping point, and such as reduce it to the Sleeping point The former act directly and the latter indirectly These last are as follows - 1 Labor this induces Sleep as you must all have experienced 2.ly certain Stimuli as Aliments - drinks, or wine, ardent Spirits Opium - Tea Coffee and other narcotics - they raise the System to that grade of debility in wh is the Sleeping point Phlogisticated air probably acts in the same way in crowded assemblies 3.ly Certain noises or Sounds such as exist in all cities 4.thly heat after exposure to cold 5.thly a Long and painfull exercise of ye understanding on any interesting Subject - These and many other causes wh will occur to you - may be called the

remote causes of Sleep 1st indirect debility next such as produce it by reducing the System to the Sleeping point — They are 1st the abstraction of certain stimuli as Sound light Sensation and muscular motion in the body 2nd Certain excoriations as bleeding purgeing Vomiting and ye like 3ly certain Substances applied to the body as oil also cold air — also under this head I might reckon the gratification of ye Venereal appetite — 4th abstraction of pain — hence persons Sleep Sound after being relieved of a fit of ye Cholic also after Child birth ~~Also the act~~ fifthly Sedative Topicons as constant thinking on any particular Subject hence according to the report of Mr Ackerman Keeper of Newgate — the Convicts always Sleep well the night before execution when they are sentenced to Death — Mr Custin who was beheaded in France wrote a letter to his wife a few hours before his Death informing her of his having Slept the whole of ye preceeding night — here despair and constantly thinking on one Subject has a Sedative effect —

There are the means of Subducting Stimuli

when

When we are excited above the Sleeping point - then wh act by raising the System from a state of direct debility to the Sleeping point are 1st Gentle exercise as walking riding rocking in a Cradle and the like 2nd the moderate degree of aliments drinks - Also Opium tea Cofee and the like - there must be regulated as to quantity for too much will raise the System above the Sleeping point 3d Certain Sounds wh we have been used - I knew a watchmaker in this City who was unable to Sleep without 20 or 30 watches ticking at his head - the hum of a bee has been known to induce Sleep - moderate warmth Pedelivium &c - Sleep is prevented by certain acts of the mind as thinking on an interesting Subject this may be remedied by counting a hundred back-ward - 6th Light - this Stimulus frequently causes Sleep in Such as have been accustomed to its presence in their Chambers - Sailors frequently fall asleep at break of day and probably from this Source - I have allsot known many instances of it -

Let us next attend to the Phenomena wh accur during Sleep these Shall form the Subject of our next lecture

Lecture 15th

Having at our last Lecture explained the causes wh induce Sleep and the 3 different modes of their action viz 1st in the case of indirect debility 2nd by the Subduction of Stimuli 3d by raising the System to ye Sleeping point - I proceed next to deliver a few observations on the Phenomena attendant on Sleep 1st it comes on by a prickling pain in the Eye lids and sense of weight - So that we can with difficulty keep them open Pain in the limbs is the next prominent Symptom this in young Children is so acute as to make them cry out it is caused by debility of the indirect kind wh renders morbid action to the Muscles - Sleep is caused by fatigue of thinking as well as bodily fatigue and the intellects are first affected the head totters first next the whole body takes the Horizontal posture wh is best adapted for Sleep - in some cases we start in our Sleep - this is induced by the too sudden abstraction of ~~stimuli~~ Sensation and motion

2nd

2nd In Sleep there is a diminution of Sensibility - hence in Cases of Stone in the bladder - there is very little Sensation of Pain - The relaxation of the Muscles is owing to this cause - - in Sleep the natural actions are Slower hence the pulse is Slower. The process of respiration is Slower Animal heat is a degree less in the Sleeping than in the waking state - this probably arises from the abstraction of the Stimulus of Muscular motion and the heat of the bed Clothes may contribute to their relaxation — Secretions are not performed as quickly in the Sleeping as the waking state - hence we seldom desire to make water during the night - hence diarrhea less prevalent in Sleep - Hence persons under Ptialism from Mercury discharge less ~~than a sleep~~ Salivia during the Night - hence too people who Sleep much become fat —

5th more heat is requisite for the Animal when sleeping than when awake - 12° of Fahrenheit will be sufficiently Cold ~~to~~ destroy life in ye Sleeping state - but according to Mr John Hunter animals can resist a much greater degree of Cold when awake

The System is weaker when asleep and more

excitable

excitable - Hence we find the Gout Epilepsy and other diseases make their first attack in the night - Children sleep more than adults, and Abortive Children more than those who had gone their full time in Utero - Old Men sleep less than middle aged till they come to that state wd Dr. Arbuthnot calls decrepitude or the 2d. Child hood - Then they sleep a great deal - 4 hours is sufficient time out of 24 for middle aged persons to sleep - Mr. Neal in his history of the puritans relates a case of an Audacious Clergyman who lived to between 60 & 70 years and never slept more than 4 hours out of the 24 The late worthy and reverend Mr. Wesley never during the latter part of his life slept more than 4 hours per diem - The same since Mr. Whitfield slept and no longer - The late king of Prussia during his latter years slept between 4 and 5 hours in 24 no man of great talents was ever a great sleeper a person who once slept with Mr. Whitfield declares that he slept more in 4 hours than any other person in 8 - So sound that not the loudest noise would wake him - 7 or 8 hours is sufficient

for any

for any Man - more is marked in Sleep wn
Perfect we have no consciousness of time a moment
and an hour appears the Same time a person
during the reign of Mercury 8th Slept for the Space
of 14 days he awoke at the expiration of wh
time and was unconscious that he had Slept more
than a moment - after Sleep the faculties of the
mind appear to be under the influence of gravita-
tion - the Moral Faculties rise to the Top and
the evil Passions fall to the lowest part hence
people are more under the influence of Morality during the day
the Passions regain their ascendency, and make a
bargain as it were with the moral Faculties
The understanding in the morning is the Brightest -
hence the Fruits of morning Studies are easyly
distinguished from those wh Smell the midnight
Lamp - When we wake in the morning
we yawn & stretch our limbs for the purpose
of perfecting the Equilibrium of excitement and
Excitability wh is not yet complete - Some people
have a Custom of Walking before breakfast wn
the System is very weak - it may do to preserve
health but not to restore it Invalids Should
never take exercise till they have eaten Some
thing

Something as the System is very weak in the morning — hence our great liability to fear in the morning — the Indians are well acquainted with this fact hence they attack their Enemies at break of day — nature to remove the debilitating vel fuel in the morning has filled the air with odours of the most agreeable kind and with dephlogisticated air from the respiration of Vegitables at the season of the year wn we are most in need of them — the Spring — These then are the principal Phenomena wh occur during Sleep and in the act of Wakeing (I except dreams) Dreams of wh I shall now proceed to treat and some other Anomalous Phenomena —

Dreams depend depend on an irregular motion or particular excitement in ye mind or perhaps to an imperfect collapse of ye Brain — in dreams there is an imperfect exportion of the apperation of ye mind — in some the memory is suspended while the immagination xc are in action — in many Dreams the Moral Faculties are asleep — we frequently Dream of committing deeds wh if awake we would shudder at { Some Philosophers have accounted for Dreams from the unequal excitement of ye Brain and quicker or slower circulation of the blood thro' it } how

how different do we distinguish persons in our
Sleep? owing to the Imagination not acting regular-
ly - and without the aid of memory - how frequently
do we distinguish as to time? owing to the Sleep-
ing of ye memory — for example we often dream
of an old friend and are with him in Idea transact
a thousand things together without ever recollecting
that he has been dead a long time - how differ
ent in dreams are our Ideas of right and wrong?
owing to the Sleeping of ye moral faculty - hence
our vague Idea of moral obligation in our dre-
ams - Is there not in dreams an abstraction of excitem
ent from one part of ye mind to ye other as in
Fevers? I think there is - It is strange that Dr.
Darwin denies this fact — The will appears not
to act in Dreams - hence perhaps the difference between
Dreams and Delirium - in the latter the actions of
the mind tho irregular are accompanied by corresp-
onding actions of the body wh does not take place in
dreams - Dreams constantly depend on excitement
hence the stimulus of the morning light excite them
also that of a full bladder - and almost any
adine stimulus in Sleep will excite dreams -
a Methodist Minister was sleeping and a fire in
his bed near unto him by his turning he excl-
aimed-

armed Suddenly, "oh now I know what St Paul means by a thorn in the Flesh — Dactor Beattie relates an instance of a young Military officer who by means of some insulting words whispered into his ear when a Sleep rose and went through the forms of a duel and was awakened by the report of a Pistol put into his hand wh he imagined he had fired at his antagonist (was the ball popped here? J.S.D) do we always Dream? this Qrstn is an important Question in it the Sleep of the Soul is concerned — Lebanese people Dream but little — many do not dream at all — Mr Lake has known instances of persons who never ~~dreamt~~ dreamt and I formerly knew a Lady in this City who never had a dream in her life tho she was 30 years old — Mr Stuart the famous Pedestrian Traveller told me that he never dreamt when he lived on vegitable ~~food~~ diet — but as soon as he began to eat animal food he began to dream — Mr Lake says he does not believe we always dream as we would think in that case without derive-ing good from our thoughts — I would for my own part as readily believe that a fever constantly exists in the blood vessels as that we always dreamt

It has

It has been said that we forget some of our dreams which a future association of Ideas will enable us to recollect - that we probably dream always and the memory being asleep we are not recollect our dreams — according to Mr Locke ye Soul and body sleep together — This opinion I have adopted and believe dreams only to take place in consequence of unequal action or morbid excitement of ye Brain dreaming occurs very frequently in the decline of life old people seldom sleep without dreaming —

We are able to wake at any hour in ye morning that we please — how can we explain this fact? I believe it depends on the impressions made on ye memory by thinking so much about it before we go to sleep — that memory remains awake while all the other faculties of the mind are a sleep — We have the power of recalling certain dreams if we please - by association - by placeing our selves in the exact position in wh. we were wn we first ~~dreamt~~ off - if we are anxious to recollect any particular dream we can do it by shutting our Eyes as soon as we awake —

Morbid Action in the Brain is some times so great as to inflame the Muscles of the Limbs hence the Cause of Somnambule — Sleep walkers

Hence

Name too Sudden Starting when we are frightened
by a dream — Waller declares he composed
Verses when in Sleep — The Reverend Mr
Brotherstone an old Gentleman of Edinburgh
a blind and Sensible man was affected with
Somnambulism if I may use the expression
in a very remarkable degree one evening
he retired to bed before the rest of ye family
The family as usual apprehended to Suffer
the old Gentleman an Rose out of bed in his
Sleep — put on his Clothes went down
Stairs — Seated himself at the table where
he conversed and ate as usual and after
further Singing a pleasant Song or two — of a
Sudden he Started up in a fright asked where
he was declared he knew nothing of what he
had been doing and went to bed again —
his veracity puts the truth of ye account beyond
and all doubt — A young man in paris
is said in Memoirs French Acad to have
written an oration in his Sleep — Somnam
bulis never recollect when they are awake
any circumstance of what ~~takes~~ occurred while
they were in that State — but in the next fit
they recollect perfectly well what they had said
done and intended — in a letter from
the

The reverend Dr L ..... of Strongfield Mass
Chaplain to Dr Stiles a very curious account
of a disease wh has a strong affinity to that of
ye Somnambuli is related and perhaps may
afford a clue by wh this disease may be ac-
counted for — "A young man in this town
"by standing a great deal in water had a ce-
"rous disease brought on him same yeas
"Since — It is a kind of fit that seizes him
"now and then at different intervals — when ye
"fit seizes him he falls down but soon rises
"again — but what is the most remarkable in
"these fits is the extraordinary state of his mind
"if he wishes to do any thing he sets himself
"about it and frequently the fit goes off while
"he is ~~about it~~ in the midst of his labor — he forgets there
"all about it and proceed to do whatever he
"was engaged in before the fit seized him — but
"at the next time when he is taken with a
"fit he forgets all his business and proceeds
"with what he had undertaken before — So that
"in short he appears to have two minds — the
"one he only uses in his fits the other during
"the intervals they act independently of each other

Perhaps the motions of Somnambuli
depend on two minds — two seats in the brain
the seats of the two minds may have actions and

intended

independant of each other - and each may have a memory with understanding &c —

The Somnambuli never recollects any of the actions performed when in his Sleep - may not the reason of this be - because the force of the impression is not sufficient to excite the memory and rouse it from its Sleeping State ? —

The Same things obtain in Mania - a person who gets an Idea of being a king or a Cobler ~~&c~~ and in one fit will forget it entirely if he be Cured - and if he relapse the Same Idea will return with the disease - a remarkable instance of this kind happened in our hospital a few years ago - a person conceited he was an admiral ordered the people about him to reeff Sink a Sail - pull the haul yards, put the Ship about &c &c - he recovered and the notion left him - he was brought back again with a relapse and was again ye Admiral

I think it probable that drunkards have the Same kind of recollection - in one drunk except what they did in the preceding one tho they are Ignorant of it when Saber Kempfer in his travels relates his having been intoxicated by drinking an infusion of a Substance called Bezanum by the natives of certain parts

of

parts of — — he was very happy while under its influence but had no recollection of his having been intoxicated — it is remarkable that somnambuli never feel fatigue from any actions committed during ~~that state~~ their continuance in that state — It evinces the existence of morbid excitement in the brain — Why do we never dream of Persons dear to us? Lovers never dream of the objects of their Passions till it begins to decline or else in the commencement of it — This is because the excessive Stimulus of thinking constantly on the same Subject during the day recovering down the excitement of ye Brain — Mr Pittenhouse informed me that for 7 years he was violently in love with a Lady and he never once dreamt of her, tho' she was the first object of his thoughts in the morning and the last ~~[illegible]~~ at Night and tho' he wished very much to dream of her

From what has been said dreams are not the effect of Supernatural agency — It would be very Surprising if deity should condescend to bore till the breaking a Cream jug and now interfere in the most important Concerns of human affairs — as for mistone to direct a Gent.

General before an important battle on wh the fate of empires often depends - When dreams do turn out to be true it is only to be explained by a co incidence of circumstances and is the effect of accident and chance - the same thing occurs quite as often in the waking state - by this however I by no means intend to shut up the channel thro' wh the supreme being may in certain cases direct the human mind reason & judgment forbid such a conclusion - the business of a Physician is to say what dreams do portend at present not what is to be at a future period - a physician may derive information by attending to dreams - they indicate as I before said irregular or morbid excitement in the brain and he should order examination, temperance in eating and drinking exercise &c - Hydrocephalus internus is always preceded by dreams - Children who frequently start in their sleep - are terrified - and see in the corner of the room something &c does not exist there are frequently effected with

Hydrocephalus

Internus soon after — To point out the
Final cause of Sleep is needlessly the Poet has
elegantly called it

"Tired natures Sweet restorer"

It alleviates all the cares and troubles of life
it is equally acceptable to the wretched and the
healthy — It is enjoyed as I before observed before
most perfectly in a recumbent Horizontal posture
but Some are able to Sleep Siting in a Chair
and even Standing upright — The next Sub
Ject on wh I have to Treat is aliment —
This you may Say is not Strictly ~~Physiological~~
a philosophical Subject but as I must treat of
Chyle blood and of digestion — It is necessary that
I Should Say a few words on the Substance of wh
Blood is formed Aliment is a very important
thing for a Physician to understand it is one on
wh he is frequently consulted — and not to be able
to direct as to its quality and quantity is
unpardonable — in his Cookery too or the
mode of preparing aliments he Should not be

unacquainted with — I shall therefore make a few observations on that it is almost as necessary as the preparation of his medicine — our time being advanced I defer entering on the Subject till my next Lecture —

Lecture 16th

Chapter II

Aliments divide themselves into two kinds
Animal and vegetable

That both these classes are were originally for the use of man and his proper food
I infer first from the structure of his teeth wh
are unlike the carnivorous or granivorous animals are a compound of both and from ye al
mentary canal - and 2dly I infer from the ill
health wh follows an exclusive use of either
species of diet thirdly by a positive injunction
laid on us by the old and new testament to
Slay and Eat. in it too we follow the example
of our Saviour who eat Flesh — let us not
suppose there is any cruelty in destroying animals for the Table - it is a gift of over flowing
goodness - by the defect thus occasioned room
is left for thousands more wh never could have
existed for want of Sustenance had not their

Ancestors been destroyed – we must consider it an act of Benevolence – The knife relieves animals from all the diseases and infirmities of age – Few animals but man suffer a division of any force – again no animals suffer pain from an Idea of future State – a bodily and momentary pain is all they suffer at this exit from Life – a man suffers more from a fit of the Gout or Stone than any animal by being killed – There is scarce an animal or vegetation whether Bird quadruped fish or even Serpent wh has not at some time afforded not only food but a luxury to Man This teaches us not to consider as intruders ~~every~~ any animal even the loathsome as worms they are all created for the use and convenience of man or of their animals —

Let us next consider the Properties of aliment necessary to render it wholsome – on this subject much has been said – I may

Premise

ts on the System lite
been followed
causes certain olim
a troable and un-
hos an
Ver is

premise 1st that the moderate use of all aliments wh is potable - & wh sits easily on the Stomach is wholsome — Take notice Gent.n I shall speak of the harmony of ye Mouth & Stomach - many Aliments please the taste wh excite Nausea in the Stomach such are not wholsome Doctor Fothergill in support of this opinion relates an anecdote of Lord mans-field with whom he used to dine now and then his Lordship frequently enterogated the doctor with respect to the wholsomeness of the food his reply was does your Lordship love it? yes - does it agree with your lordship? yes then it is certainly wholsome — much of the most unpalatable food is capable of easy digestion and forming good chyle 2nd there are some aliments wh do not

Ancestors been death
it an act of
ones among

do not show their ill effects on the system till some years after they have been swallowed

3d- Particular Idiosyncrasy causes certain aliments of very easy digestion to most people and undigestable to others 4th The time of life has an influence on the wholsomeness of food — Butter is to many people at certain age unpleasant yet in general it is a delightfull part of diet — So that the same aliment ~~diet~~ varies in this respect at certain ages 5th Habit has a great influence of aliment rendering us pleased with such as was unpleasant at first and the digestive powers as well as the appetite. this remark extends Fat Pork for example becomes both agreeable and easy of digestion to persons to whom it was at first unpleasant and unwholsome — these remarks being premised I proceed next to notice the different times when aliment is taken — in this country as well as among most civilized nations. custom has established 3 or 4 meal times as they are called in the 24 hours — this accords best with the convenience of our occupations — but I further Man like the Horse was designed

to eat

to eat always or atleast little and often
so as to keep the Stomach continually and
in the impression of moderate distention
the inconvenience attendant on the long inter-
vals of time between meal times are most
observable in children and old men who
have arrived at the second childhood - they
cannot bear the ordinary time without hun-
ger the Indians eat little and often Mr
Bartram informs us that they frequently rise
from bed to eat this method keeps the sy-
stem under a more constant influence of
stimuli and allows distention to go on with
more ease and the Stomach to be evacuated
of its contents and the impressions on the
Nerves and circulation is more uniform
the Languor arising from the long inter-
vals between meals has given rise to the
use of ardent Spirits Tobacco & Opium to
to supply the place of Food - Custom
has rendered necessary for us to make one
principal meal in a day - disputes have
arisen concerning the most proper time
for this

for this Meal — in my opinion the roman custom of having it in the evening is the best after the coi-
-ces fatigues and labors of the day — digestion is promoted by rest after a hearty meal and the night is the most convenient time on this account perhaps about 8 o'clock in the evening — this ar-
-gument will not be so powerfull or favorable when we recollect that rest should not be horizontal the Portuguese it is said lie on the floor after dinner but it is not in an horizontal position they rest themselves back against a wall and sup-
port themselves between two chairs Augustus used to lie down to sleep after dinner but he slept in his chair — in short people who make a prac-
-tice of sleeping after dinner always rise sick ill-
-tempered or stupid — a very common custom is to drink bitters before meals — this I think highly prejudicial to the appetite wh it frequent-
ly destroys or makes so keen that we eat too more than is proper the Indians well know this fact that drinking before meals destroys the appetite hence they never taste even water before dinner during their long marches

a

a much better mode of invigorating our selves before dinner is to eat Ginger bread figs raisins or the like it does not destroy our appetite and enables us to wait the accustomed hour — it is customary also to drink at meals when we perceive the appetite flag it re excites it — this I conceive to be injurious — it makes us eat more than we have occasion to eat and impairs digestion by debilitating the gastric juices and hurrying the food through the Alimentary canal before they are perfectly digested — Covering food is another custom wh I disapprove of — it subjects the aspirator to a quarter of an hour severe labor impairing his appetite by wearing down excitement as men are usually debilitated before Dinner — and subjects him also to the inconvenience of swallowing his food before he has masticated it properly to avoid the suspicion of being ill treated bred by being longer at his dinner than his Neighbors — he must enter into contest with a goose or turkey wh fatigues him so much as deprives him almost all pleasure from his dinner — not to mention the

mention the damage done to clothes and total blotches
the Chinese and of late years the French have been in
the custom of disfiguring the Shape of the victuals
which they present you so that you forget that you
are dining on an innocent and perhaps a usefull
Animal - This Idea Anthony Benezet could
never bear — the Chinese neither use Knives
or forks at their Tables wh is certainly an im-
provement again - The absurd custom of drink-
ing healths subjects one to continued interup-
tions to return thanks and also makes us drink
more than we would do - to interrupt rudely our
Neighbors intent of eating with spoon and toast them
with good wishes for their health - moreover
it breaks the Silence which I have else where obs-
erved is necessary for ye perfect enjoyment of the
senses of taste and thus destroys our relish for
food

The wholesomeness of aliment depends on
its Solubility in the Gastric Juice or on their
Assimilability - The nutrition they afford arises
from the former the following circumstances
influence the Solubility of aliment

1st Sex Females of all animals are more tender and easy of digestion than males Castrated Animal more than those who retain marks of their virility if I may be allowed the term – hence Capons are preferred to Cocks and oxen and Wethers to bulls and Rams age has a great influence on the Solubility of animal Food – adults are more stimulating and more easy of digestion than young Animals – hence beef and mutton are easier digested than veal or Lamb – Mutton is at perfection at the 5th year – The pre-eminence of the Scotch and welsh is in keeping it till the 7th year – the time in wh the animal has been preparing for the Slaughter house and the method used influence very materially Solubility of animal food the longer they have been fattening the more wholesome is the food the Superiority of the Irish food consists in their keeping their cattle 2 years fattening on hostile grounds – hence too they enjoy the privilege of exemption wh is the 4th, Cour

4th cause of influencing Solubility of animal food - exercise has a powerful influence - hence we find wild birds and beasts much more tender than domestic animals - hence bad Epicures have invented the practice of Bull ~~fighting~~ Baiting and pounding to make the animals more tender Cockfighting hence derive its origin - This meat is so Soluble that it passes too readily through the intestines - hence we find people who live on wild food less able to work than those who feed on domestic animals -

5th The quantity of Fat on Meat renders the lean of fat meat more easy of digestion

6th The length of time wh aliment is kept before it is cooked has a great influence on Solubility - there are three exceptions to this rule - geese Pigs and Ducks contain an oil wh becomes rancid if kept more than 2 days and renders them rather unwholsome - they are best the day ~~after~~ that wh they are killed - turkeys and fowls do not contain an oil of this Nature in Summer meat cant be kept with convenience more than 2 days at farthest - in winter a week is common in Summer Ice houses are

Ice houses are very useful for this purpose - where they are not to be used cold Springs of Water or wells answer the purpose very well Meat may be kept for a week in July or august in a well or cold Spring - the outer part being cut off the blood runs of if just killed - if it be dressed a few hours after it be taken out of the water it is very tender - where there is not handy a dry Dark cold Cellar should be used Dr. Clavet when in Jamaica used to kill his animals by bleeding them in the carotid artery and inject into that vessel after the blood was evacuated a quantity of Solution of Salt very strong this preserved the meat in a remarkable manner - 7thly The Salubrity of animal food depends very much on its being well Cooked - Raw meat and Meat imperfectly done is very difficult of digestion all the redness should be destroyed 8thly The Salubrity of animals food depends on the manner in which the animal is killed according to experiments made by Dr. Franklin those killed by Electricity are more tender than such as have been killed in any other

manner

manner — this the Dr. explains from the disorganization it produces —

9thly Digestion is much facilitated by a complete mastication of food and mixture with Saliva

It very bad practice prevails now of preserving poultry with their entrails in them it hastens putrefaction and the flesh always acquires a taint from it — The light of the moon has been said to produce a tendency to putrefaction — Fish kept by moonlight in the west Indies are said to putrify very speedily — this observation made by Dr Lynch in the West Indies has been confirmed by Dr. Balfour in Bengal — How is this effected? perhaps it may be owing to the succulency of the animal — but is it not more probable that the light of the moon enables flies and other insects to deposit their eggs on it and thus hasten Putrid.ty? Crabs & Oysters Lobsters and Clams are fater at full Moon — We next proceed to the methods in use of preparing animal food for use — The 1st is in form of Soups these are in use in most nations — The Scotch have their "Hodge podge" "Caikalickey" "and black Soup"

The French

The French have their Fluid aliment in form
of "Soupe "Gras and "Soupe "Maigre another fam-
ile Dish is "Boily Broth" this is made by
boiling a piece of meat the closer the better
in Water and throwing in to it a quantity of but-
ter by herbs and Spices are added they make
the "Cockaleekey" (a very excellent dish) by boil
ing a Cock as old as they can procure him
that he may retain his form the longer — they
boil him in a pot of Water together with
Beets Leeks or onions and if a piece of Beef is
handy they throw that in and Simmer the whole
this is boiled a long time and if necessary fresh
water added and a very excellent Soup is the
the product the name derived from the ingredients
the Cock and Leeks. — Their Hodge Podge is made
in the Spring by boiling Mutton with every vege-
table wch their Gardens afford Beets, carrots
turnips potatoes and the like and in Some cons
it is a very profitable dish the French make
their Soup "Gras" by boiling 5 pound of
beef and 8 pounds of Water down to 4 pounds
one a Slow fire in it is dissolved 4
ounces pounds

4 ounces of Butter and vegetables and Seasoning are added — their Soup Maigre is made by boiling 4 Pounds of Beef 4 of Bread buttered 4 onions 4 leeks — turnips in 8 pounds of Water for four hours with fire sufficient to make it boil away to 4 pound of Liquor it is Seasoned and boiled again to Separate all the fat that may arise this is done with great care as fat is very unpleasant and not easily digested — in making Soups the longer they meat is boiled the better as the mucilaginous and gelatinous parts are more completely ~~separated~~ extracted —
4 or 5 hours over a fire — Sufficient to make them simmer is the best mode of boiling meat ~~for~~ the purpose of making Soups — the pot should be closely covered and the fat skimed off toward the end of the process as much as possible — I said 4 or 5 hours but a longer time would be still better — for instance from 7 or 8 in the morning till 2 after noon —
A Second mode of Cooking animal food consists in boiling it — Boiled meat is

less stimulate

Stimulating how when cooked any how else
it is better for young people convalescents
from acute diseases — Mutton is agreeably
cooked by boiling and strange as you may
think it Ducks and Geese eat much better cooked
this way as they are deprived of their oil —
Roasting is the most usual mode of dressing
meat in general — it is most savory and plea-
sant to the taste — more stimulating an nutri-
tient — the Patriarch Isaac probably went
this mode of cooking when he dressed his Son
Esau to make his meat savory — for roasted
meat is the proper food for old people —
and such as are afflicted with weak stomachs
4th broiling — in this manner beef steaks
are dressed also Mutton Chops — The great
Art of Mrs. Peg Muller whose fame for
cooking a Steak was unrivaled in this
City consisted in exposing the beef to a
strong heat at first — so as to astringe the
out side of the steak and retain the Juices —
She performed this by laying the Steak not
as in common on the gridiron — but on an iron

Iron plate: such as is used in baking buck wheat cakes — the miners in Cornwall are acquainted with this part and cook their steaks by putting them on a block of tin at the moment of its passing from the fluid to a solid state —

5th Baking this is usually done with a paste made with flour in the form of a pie

The meat is well cooked and easy of digestion — but the crust is unwholsome and sits heavy on the stomach —

6th Roasting — Dr Franklin says the best mode of cooking Mutton is to roast it — then to have it boiled and made into a hash — they differ little as to stimulus or nourishment from

7th Stewed meats these are more nutritient than boiled tho less than roasted — less of their mucilage and juices roasted than in boiling they are not so completely preserved as in roasting —

8th Frying Hogs Lard and butter is used in this mode of cooking — Decon fat is preferable perhaps to either — Fried meat is considerably stimulant — and costly by heat vapor of Water this is performed by placing the meat in a pot — the is placed

over an other pot containing water — fire is placed under the lower pot so as to make the water boil. the meat is thus involved in a quantity of vapor — and is said when cooked to be very tender —

Having thus mentioned the circumstances rendering animal food wholesome and digestable — I proceed to say a few words on aliment — wh appears intermediate betwe — n animal and vegitables viz Fish —

This Says Doctr Mollet was the first food of man as his necessitie led him to eat that animal in preference wh expired without a groan

These do not differ in quality by age but principally by the time wh elapses betwe-en their death and their being eat — the sooner they are eat the more wholsome — as they are very putrescent — in Holland they are sold alive — as they are life stimulent upon a animal food and promote perspiration they should be used by convalescents before meat. they are very easy of Digestion Oysters and Clams afford nourishment

Eels they are not very stimulent and are easy of digestion but eat without mix

cooking — Clams are generally boiled in Soup hence they are more stimulant — Lobsters and Crabs contain very little Nourishment the usual mode of cooking fish is by boiling the mode of telling when they are done is to observe the time when they float on the water — if the boiling be longer continued they fall again to the bottom — Fish should not be eat with any other meat unless a Slice of Tongue or ham — wh is of no detriment to digestion — to Invalids a diet of Fish with tongue or ham is very proper — It has been a Rule in the oldest established Church the Catholic to abstain during 40 days in the Spring from all other food than fish — this Lent is a wise institution and should be adapted by all the different Sects of Christians — it comes at a time — it comes at a time when the diseases of Plethora prevail and is of use by reducing the quantity of food nourishment — 2ndly it prevents our eating Land animals at a time when they are not wholsome as when they are protrudency their Shews —

Condiments

Condiments are just much the description of Animal Food — and are used by Mankind for that purpose — They are first common Salt A Taste for this appears innate in the Human Species — Children early discover a partiality for it — Heat may I not mention heat as a condiment? Aliment is certainly more pleasant when eat warm than cold — common Salt is ~~not~~ only pleasant to gramivorous animals — the Indians substitute ashes in its place Salt promotes digestion — a Spoonful of Salt after dinner promotes digestion better than any thing I ~~have ever~~ am acquainted with — —

2d Vinegar this is a condiment much used when in moderation is useful — and Stimulates the tongue to more acute perceptions of taste Pickles are vinegar in a solid form —

Pepper — Mustard — Horseradish — and a few other most stimulating vegitables I think very injurious unless used very sparingly — Ketchuck is used with fish — made by ~~dissolving~~ macerating Mushrooms with common Salt 2 or 3 days — then boiling them and adding Spices of different kinds — is a pleasant condiment with

With fish but is seldom used with any other aliment the English have taught us the too free use of wine as a condiment — after fish a glass or two of wine is usefull — but hetty is he whose Stomach has no need of such a Condiment — having thus treated of Animal in general — I shall next proceed to the methods of preserving it — they are numerous —

1st heat of the Sun — in this manner the Indians preserve their venison — it acts by exhaling mois ture from it — without moisture putrefaction can not go on — a piece of dry Sugar would not fer ment in 100 years — a Solution of Sugar in the course of 24 hours in Summer — at Sea this method is often practiced — Stock fish are prepared by it 2d by Freze — ing — this method is used by the Canadians to pre — serve fish — they must be thawed afterwards in cold Water 3rd by Sugar and Molasses 4th by preserv — ing it from the air as by Sand and flour 5th by Smoking this hardens the meat and appears to possess an anti Septic quality 6th and most commonly by common Salt — a small quantity of this appears to hasten putrefaction — while a larger eventually

prevents it - Nitre apart much in the brine it gives the meat a better colour and also renders the meat more soluble - Meat preserved by common Salt is more Nutritious than fresh Meat hence of use in certain diseases - but especially in convalescents from bilious and intermitting fevers and other acute diseases

an other mode of Preserving Meat was mentioned to me by an old East India Sea Capt - it is to cut out the bones - as he observed the Meat to become tainted first near the bones -

There has been a variety of methods used to preserve ham through the hot weather - ashes - bran saw dust sand and even white washing them have been tried - an intelligent Country Gent informed me that the best mode wh he found and he had tried all was to place the hams dry and separate in fine cut straw -

Lastly Patent Soup - this is made by evaporating a decoction of Meat till it becomes solid it requires only to be boiled in water to form a very good soup - Mar

Man is the location of habit and happily formed by Nature to live on almost any thing — in the form of a Tartar he has been known to open the jugular veins of many a goat or Sheep and make a hearty draught of his blood — In Patagonia he has eaten the flesh of his fellow man — Tartes are infinitely various — there is an amount day a Society of Philadelphians called at St Domingo of Some Negroes who dug up with great avidity the carcases of Putrid animals & devoured them greedily — Some are best pleased with Birds of Prey — the Persian lives principal host of the ~~Dyeaman~~ on Dates and figs — a Traxen-fort informs us that the Turks at Constantinople live during the Summer on little else than Cucumbers

This difference of taste is not exclusively confined to the human Species — Spalanzani has made Eagles eat Bread and young Pigeons eat meat

Aliments differ in quality in proportion to the various proportions of Sugar, oil, and Mucillage or gluten they contain — 1st Sugar is the most nourishing of the three this has been proved by experiment — 2 Pigs of equal age and weight were fed

the one on Potatoes, the other on Parsnips weig-
-hed, in a given time Several ounces more than
the other - hence persons who are about to travel
and expect to be scarce of provision had better
carry a Quantity of Sugar with them
Hence the Date is nourishing - frees Raisins -
& oil whether vegetable or animal is nourishing
olive oil is used as food in the east Indies - one
pound of Fat meat is more nourishing than 2 of
Lean hence from Economy, persons who have
the direction of Iron works and other places
where a large number of ~~hands~~ Men are employed
feed them on Pork as it contains much Fat
3d. Gluten is the least nourishing of the
three principles - Gluten by Chemical opera-
-tions may be obtained in Sensible State as
much from wheat or Potatoes - Dr Morgraw
long ago Separated Sugar from the Juice of
Beets - it exists in many other vegetables
than the Sugar Cane - during the revolution
an some farmers in N. Jersey extracted large
quantities of it from the extracted Juice of
Corn

of Corn Stalks when Sugar was very Scarce their method was to evaporate the Juice to the consistency of Molasses with wh they Sweetened Coffee tea &c - all vegetables is therefore Nourishing in proportion to the Sugar they contain next is the oil and Lastly Gluten - This said the Prospectus provide Sugar in large quantities from Turnips - What is the proper quantity of food for a man Per diem? - this varies according to many circumstances - Children require more food than adults - and old men more than middle aged - People who Labor more than those who are sedentary - and all men in winter more than Summer 8 Pounds are allowed to be the quantity for a moderate Laboring man allowing half to be animal & half vegitable This I am persuaded is more than they have any occasion for - Mr Volney informs us that in some parts of Turkey half a pound suffices a Man per day - and that of the most insipid vegetable kind - from 4 to 6 pounds is my opinion the quantity for a healthy adult - hearty eaters

more

more necessary — and habit would soon make this gradually agreeable — It is probable we eat less for nourishment than for stimuli — This I infer from stimuli supplying the place of food — Fever affords a familiar example — a man is supported without any aliment for many days in acute fever without loss of strength — also the stimulus of miasmata and contagion renders food unnecessary — What is the proper temperature for food? I think most natural is warm Indians we observe prefer warm to cold food — heat of course makes aliment more stimulating — Hitherto I have said nothing of tea or coffee they afford no nourishment but what is derived from the sugar & cream used with them — they act perfectly on the System thro' the medium of the Brain and Nerves — Coffee acts principally on the brain tea on the Nerves and muscles — the former in excess produces Vertigo — the latter Tremors —

They are

They are certainly of great use in preventing the Drinking of ardent Spirits — Tho' much has been said against their ill effects on the System — when used in the following Cases they do no mischief but much good 1st in cases of great fatigue either of body or mind — Tea or Coffee are a pleasant restorative and exhilerates the Spirits and Strength — 3d in cases of great grief Coffee or tea is useful remedies and in other depressed states of the mind — 4th if we wish to remain watch ful the best medicine is to take strong tea or Coffee hence studious people frequently have recourse to it at evening — 5th Strong Coffee has a peculiar power in guarding us from the Cold — a Country Physician informed me that he never took a long ride in the Cold without drinking a pint or quart of strong Coffee wh effectually guarded him from Cold — a Person told the Father of Anthony Benezet — he thought Tea a slow Poison — yes replied the old gentleman "I think it is — for I have drunk it these fifty years twice a day and am not dead yet" —

A rem-

It remains further to speak of Drinks
These are first fermented Liquors as ~~Beer porter~~
Wine and Cider and Perry &c - Malt Liquors
as Porter Beer and ale drink as are produced
from barley by malting - 2d Ardent Spirits or
Distilled Liquors as Brandy Spirits Rum Whis-
key and the like 3dly Simple water -

1st Wine is a compound containing Ardent
Spirits, Water Sugar and an unfermented must
they Nourish in proportion to the Sugar they con-
tain - Hence the Sweet wines are most nourishing
as Malaga Constantia - the next in point
of Nourishment are the red wines - Madeira
Port Sherry - Claret Burgundy

The order in which they stimulate is some what
different from what they nourish - the Low
red wines are the least stimulent but in small
quantities cleans the palate best and is the whol-
somest - it has never been known to produce
the gout - the Gout is unknown in Mad-
eira and the inhabitants of that Island consume
annually 70,000 pipes of that wine - when the
weak wines tend to acidity Brandy is added ob-
viating it the

The French add to thin low wines
Lead when they become sour the acid unites
and forms a compound of wh sweetens wine
they often prove a slow and sometimes a sud-
den poison — it may be detected by adding or
ferment to the wine this is compound of Sulphur and
Arsenic a muddy precipitate falls down if
the wine contains lead — if wine be too sour
it may be corrected by adding Sugar — but before
it is used it must stand in a cool Cellar or
vault and not moved or other wise it
surposes to ferment — when wine spontaneously
becomes Muddy it is restored to its color by
adding Sol Sodae wh unites the fermentable
matter and precipitates it

Lecture 17th

We proceed Gentlemen with the Subject of
wines — They should be kept in a room
dry room gentle agitation and warmth causes
a fermentation of any overplus of Sach-
arine Matter — Lime wines are improved by sea
voyages and land Carriage ——

Wines are

Wines are seldom fit for use till the 4th or 5
year the older they are generally the better as
it fines it self perfectly by being at rest – This
process of fineing may be performed either by
mechanical or chemical means – the first
by brown Paper or Sand – this acts by tiring
the particles of matter wh make the wine
muddy – a particle of Sand or mistone coming
in contact with a particle of this muddy matter
wh it attaches and they sink together to the
bottom of the Cask – the 2nd by white of Eggs
milk or blood – they act by entangling the
Flocculent matter at the moment of their coag-
ulation by the acid of the wine – and falling with
it to the bottom of the Cask – wine deposits
spontaneously a redish Coloured substance at the
bottom and round the sides of the Cask in
wh it is contained called tartar – it consists
principally of tartarous acid – the cream of Tar-
tar is prepared from it – The Germans call it
wine Stone and use it as a ferment in making
Vinegar they add it to their Cider and wine for
this purpose – in consequence of this deposit-
on the wine becomes less inflameing – and
Wholsomer

wholsomer — hence we explain why wine from the cask is wholsomer than bottled wine — and hence wine never improves after it is bottled owing to the circumstance that Tartar is only deposite on wood and not on Glass — next of Malt Liquors —

Malt Liquors these contain some Spirit much Saccharine matter & great proportion of Water — from the Saccharine Matter they contain they cannot but be highly nutricient — hence they are much used by the poor of England and Scotland — for Laboring people they are a very proper drink. but for people of Sedentary lives they should not be used

Cyder this like the Colored wines wh effervends with acid is apt to produce Gout and Rheumatism — of the malt Liquors Porter I should prefer — as its parts are more intimately blended than Beer &c. — When Cider is wanted in its best state — the method is to rail two barrels into one — let it for 4 or 5 years and is a very wholsome and agreeable Liquor —

Ardent Spirits (or distilled Spirits) consist of a Spirit

Spirit and and Water - and no Sarhorrin matter
they are encholerone in every form perhaps lips
so in Punch the acid is blunted by the Sarhori-
ne matter and the adition of Lemmon Juice renders
it equal to the Lord wines — To prescribe the evils
produced by this ~~blameable~~ & baneful liquor
would require a thousand tongues and cart arma
with all the force of ancient and modern eloquence
This is not the proper place to enter upon
this subject — Lastly pure Water this liquor
will ever retain its Character for Solubrity — were
we confined to any particular drink exclusively
water would be the most agreeable - are we thirsty?
nothing but water can Alley our thirst - are we
burning with fever? nothing so derived as water
to cool our excessive heat - have been intoxicated
with wine or Spirits nothing so cordial as Water to
our angry and offended Stomach — let Sick as
happy a taste for this ~~inadulterated~~ unadulterated
learn to estimate the inestimable blessing
wh lead to good health and long life let
us next consider the causes of appetite
1st Boerhaave assisted hunger to the action
of the internal coat of the Stomach

2 ndly

2ndly he thought in in part owing to the bile in the stomach and lastly to the stimulus of the gastric juice and the Relequae of the former meal — all these causes & grant may induce morbid appetite not a natural hunger Cazelius opened the stomach of a robber famous for the inordinate quantity of his food — and found the ductus communis choledochus empty ing into the stomach — but in common natural hunger I believe the stomach to undergo a certain degree of relaxation till it arrives to what I have called the hungry point — when it is below that point — anorexia or want of appetite comes on in this case stimuli excite appetite Hunger when ~~violent is~~ acute is a most violent disea — se in it there is great pain not only of the stomach but the mind, especially the moral faculty — it has been said to break through stone walls but it has done more — ~~through~~ the medium of diseased moral faculty it has induced mothers to kill their children and make food of them — this is not all it makes people eat their own flesh — sailors who have suffered shipwreck have been known to eat their shoulders for sustenance — That a certain degree of relaxation is attendant on hunger I infer from the

effects

Effects of certain passions which sustend it such as Shame - Fear - Grief and the like - they act by lessening the debilaty and relaxation or by reducing the System below the Hungry point - here we see it resembles Sleep - Joy Cheerful. Company and pure air raise the System frequently above the hungry point - I have heard persons often remark that they felt hungry after having been 4 or 5 hours at the Dinner table owing to the Cheerful Company and conversation keeping them above the hungry point - I do not deny that the Gastric Juice bile and fluids may stimulate and induce hunger - but I believe appetite then is a morbid thus in case of yellow Fever - Patients who have the black vomit eat very heartily now and then - & probably from this cause - again - in Hunger the excitibilaty is increased - hence the Death of Mr Otway the Poet from eating a loaf of Bread - is this very excitable State brought on by fasting - smelling food renders us incapable of eating as much as we otherwise should do - many operations of the mind suspend hunger - as in the case before mentioned of Lord Mansfield.

Let us next inquire into the causes of thirst

The Seat of thirst is the mouth and fauces

Fauces — thus I infer from certain insects and and fruits and other substances allaying it the causes which excite thirst are either general or Partial — 1st a certain accumulation of the Fluids produced by fevers and after a suppression of urine — or by eating Salt meat — the first acts generally on the System and renders fluids necessary the last acts partially —

2nd — a Relaxation of the Fauces accompanied with dryness and debility to the degree I have called the thirsty point

3ly From opium digitalis and some other medicine which induce indirect debility and thirst ! Having thus treated of Aliments let us next enquire into the change they undergo before they are converted into blood — aliments received into the mouth are divided by the action of the teeth — and triturated so as to become mixed with the Saliva from the Parotid — Submaxillary and Sublingual Glands — the tongue performs the important service of in mastication of Pushing the aliment about the mouth so as to expose it more completely to the action of the teeth — & then protrudes it to the Epiglottis and thence into the Esophagus where it passes into the Stomach

where

where it is to under go the process of

Digestion how is this performed? It has been attributed to two agents – the one mechanical the other Chemical – the first or Mechanical by trituration – the Secondly heat – Solution Fermentation and putrifaction – are each of wh I shall proceed to remark –

Much has been ascribed by Mechanical Philosophers to trituration in digestion – Dr Pitcairn has computed the force of the Stomach in digestion at 12950 lbs Dr Boerhaave calculated all the forces exerted in digestion ~~that~~ of pulsation of the Heart of the diaphragm in Respiration and included even the Pulsation of the Aorta – That Trituration notwithstanding those calculations does not influence the process of digestion I infer from some experiments of Spallanzani – he Swallowed 25 grapes and of them 18 were voided without being broken – he repeated the experiment with Cherries and with the same result – If the force of the Stomach was not sufficient to break the tender Skin of fruit it can have but very little influence in digestion

next the

next the
chemical agents in order — Putrifaction I reject
altogether from digestion it renders aliment unfit for
chyle and we find from experiments that any sub-
stance wh is taken pushed into the stomach is
corrected before it is digested — Heat. Solution &
Fermentation I admit tho' the latter is not so gener-
ally received —

That Heat is necessary I infer from .....
wh digest in 2 hours in Summer as much as they
do in 2 or 3 days in winter or cold weather — again
heat must be present for the Procs of Fermentation
and Solution — the gastric Juice is capable of
dissolving at the temperature of 46° but the hotter
it is the more the Solvent powers are increased
till the 112° at wh it appears to be perfect this
is a few degrees more than the Human Stomach
Spallanzani has proved that at a heat of 96°
gastric Juice dissolves more than at 20° below
in the first Substances were dissolved in 12 hours
in the latter it required 2 or 3 days — Mr. Hunter
has has proved too that what was dissolved at
60° in the frog .... required at 35° or 40° 12
for a Solution — Sallivia aperts the Solutio

Solution of our aliment as well as the gastric Juice - Spallanzani is not intitled to the honor of this discovery, Hoffer mentions it in his quot work 30 years before Spallanzani - Solution differs in different animals - those wh have Gizzards have less aversion for Solution than other animals - perhaps the dissolving power of the human gastric Juice exceeds that of any other animals - in very old people and in children it is the most complete - for the aperstome demand to Solution from mortification is less in those their in the middle aged adults - Dr Stephens of St Croix has proved the and of putrefaction in aiding Solution fully - Dr John Hunter says the Gastric Juice dissolves the Stomach after death - this I doubt - I think the appearance he mentions must have arisen from vascuous inflamation and Mortification - it is frequently occurs in the bowels as in the Stomach Spallanzani found that digestion went on in the Stomach while it kept warm - The Gastric Juice affords by analysis - Aromoniacal Salt and Phosphoric acid

This and

this and curdles milk in the stomach of children and calves - tho' there are many other substances capable of producing this coagulation - the liver lungs and heart of a turkey do it - calves fresh even when alive - some vegetables also possess that power as the Artichoke leaves - and they have no acid - the first thing therefore necessary to digestion is solution (effected by heat) 3.ly Fermentation - this I know is objected to by some - but there is equal as much foundation in opinion as in deep - this is old fashioned but I believe true - by fermentation heterogeneous substances become blended by a motion in the fermentable matter wh renders them homogeneous and a New compound is formed Animal Vegetable and mineral matter are capable of undergoing this process - Fermentation is divided into 3 Different stages in vegetables they succeed each other Vinous . Acetous .. and Putrefactive but I doubt whether they do in animal or mineral substances - some have asserted that certain Animal matter undergoes the Vinous state but this is not certain - It certainly does ~~the~~ undergo the Putrefactive and Acetous

Dr Smith

Dr. Smith, of Bringing hom say he detected Spirit in animal Matter under fermentation 2 days in hot weather — The following Circumstances are necessary favorable to fermentation 1st That this should be from 72° to about 112° 2ly Moisture is indispensible — Sugar the principle disposed to vinous fermentation may be kept 100 years from fermenting if dry — 3ly air — 4thly Rest or perhaps moderate motion may facilitate it as it does digestion — 5thly Ferment action is quickened by certain Substances called Ferments — Here for this requisites for fermentation is in the Stomach — I Shall 2nd consider that this no one will deny is in the Stomach — it is about the proper temperature time for this process 2d — Moisture this the Saliva and Gastric juice Supply — 3d — Air it procures along with the Saliva — 4th — Digestion is known to be facilitated by Rest or ~~agre~~ gentle ~~able~~ exercise — Violent motion retards it very much — and 5thly I think the Saliva acts as a Ferment in hastening Fermentation to prove this I made the following experiment

experiment — I took 2 half ounce vials one filled with
Water the other with Saliva and into each I put a piece
of Bread and of Meat of equal weight were placed — I exp-
osed both to the same degree of heat in a Sand bath
that of the Human Stomach 96° the mixture of
the Saliva began to have some motion in
five hours — in 7 it was evidently sour — and
in 12 quite putrid — that in wt the water
was used remained till the 20th hour before any
agitation was perceived — I repeated it the second
time with the same result — that the Saliva is
wrong for digestion 1st from the quantity secre
ted wh is about 12 ounces in a day — and second-
ly from the indigestion wh follows the want of
it from chewing tobacco — I am not singu-
lar in my opinion concerning the ferment of ye
Saliva — Stahl, Boerhaave Hoffman and Mac-
bride all thought it such —

Rather to Gent. I have used only presumpti-
ve argument in establishment of my opinion
but I shall now adduce experiments made not on
simple brutes as those of Spallanzani — but on
my own Stomach in perfect health — I first

I first took a few grains of Salt of tartar for the purpose of neutralizing any acid that might exist in my Stomach - previous to the experiment - I dined then on Beef. Bread. Peas & small Beer - 3 hours I took 2 grains of Emt Tartar and emptied the contents of my Stomach wh were evidently acid to the taste and colored an infusion of blue vegetables red - in my second experiment I dined on Veal. peas Bread and Water. after the precaution of Salt of tartar and in 3 hours in three hours I vomited and they were acid as before in my 3d experiment I dined on Poultry Cabbage and unleavened Bread and the result was exactly the same - To avoid however however the Superstition that these circumstances arose from any Idiosyncrasy in me - I obtained the use of a healthy young english Student of Medicine for the same experiment he dined on drink Beans and Small beer the same acid indications were again observed very the same taste and red color to blue infusion a gain an entire Dr Gregs observes that the acid might arise have proceeded from the decomposition of the

Emetic tartar - this I think is above of 2 grains
of it could never have yelded a sufficient quantity of
Acid to sour the whole contents of my Stomach —
I agree with Spallanzani that the gastric juice
is the principal Solvent of our aliment - but not
all together and independently of the fluids common
in digestion - if it does there is no other menstruum
in Nature wh proposes so universal a Solvent power
and no fluid in chemistry is capable of - - - - in
the manner in wh the Stomach does - out of a
number of matters it uniformly prepares one peculiar
substance chyle - here I think the other Sub
fluids must have some agency in digestion
The base of the Gastric juice is Phosphoric
acid this however was not the acid disengaged in my ~~Stomach~~ experiments — experiments
too prove ~~that~~ the acid to be various - and prove
that Spirit of wine may be obtained from the cont-
ents of the Stomach are all that is wanting to con-
firm most positively this theory of digestion.
I next proceed to take notice of the Phenomena of diges
tion. — They are first slight fever following a very hearty
meal - it is occasioned by an over proportion of ali-
ments

Aliment but is by no means necessarily connected
with eating — a ~~perpetual~~ preternatural degree of heat and with
a gentle perspiration it goes off it is because the vascu
tabulaty is not proportioned — that this effect is owing
— Some people before being exposed to cold should
make use of this method of avoiding any ill effects
from it (a hearty meal) — this I recommended in a pam
phlet I published during the revolutionary War
entitled "directions to Soldiers to preserve their health
in it I recommended that no man should go upon
a Centinals duty without eating a hearty supper
before hand — 2nd ly a full meal disposes to sleep
by inducing indirect debility — this may be relie
ved by Snuff Chewing and the like or wine Sing
being ab — this is not necessarily connected with
a moderate meal has not this effect — Lewis
Cornaro informs us that he never felt sleepy after
eating since he adopted his ~~moderate~~ temperate mode of liv
ing — 3dly the Mental faculties are affected
by a hearty meal this is not necessary to eating
but only arises after too much has been eaten
L. Cornaro could relinquish his knife and
fork for his book or pen without any incon
venience

inconvenience he had live conformable to reason and Nature — but by it he attained good health, and extreme old age — 4thly a general disposition to rest ensues after a full meal — this favorable to fermentation and of course digestion — No moderate exercise is compatable with it — These are all the Principal Phenomena immediately observable after eating — and leads to repeat our observation made before that weakly persons especially convalescents or invalids should never over eat themselves

Cornaro who lived by Weight and measure brought on a fever by exceeding his usual quantity two ounces — has many instances of palsies Apoplexies & even death from heavy meals? In short I am seldom called to patients labouring under Chronic complaints but what I direct 6 or 7 meals instead of 2 or 3

The Passions of the mind influence digestion the Stimulent passions as Joy hope &c — increase the digestive powers while fear Shame as have a Sudden operation & sink diminish or retard it — ~~Their action is only comp~~ Their action is only confined to the muscular fibres of the Stomach and using debility in them as is proved by the subsequent weakness of that organ — The

The Aliment having undergone their change by Solution and fermentation in the Stomach enters the duodenum where they are mixed with the Chyle according to Dr Ramsey thus destroys the acidity and renders it Bland — Dr Ramsey has written a very ingenious dissertation "de bile" Published at Edinburgh in wh he makes experiments wh prove that opinion — the bile mixing with it in the duodenum precipitates those parts not convertible to Chile and thus form the basis of the Feces wh are expelled — the Chyle is absorbed by a Set of vessels called Lacteals which are spread about the intestines and wh terminate in 4 or 5 channels all emptying in the receptaculum Chili and thoracic duct — thence it passes into the left Subclavian vein — The Chyle has its constituent parts more intimately blended by passing thro' the mesenteric glands —

Lecture 18th

Lecture 18th

The next subject for consideration is this fluid produced from the Chyle viz Blood - I shall confine my self to a Physiological account of it - The red blood as it flows through the vessels of the living Animal appears to be a homogeneous fluid - but When taken from the vessels separate into several parts - First a Wallitus rises from its Surface wh appears to be mere vapor oozing from the aqueous parts of the blood - The blood is diminished after a short time in quantity as the fluid part is thus dispersed - Thus it loses a considerable quantity of its Weight - The Wallitus arises in quantity as the temperature of the weather is hotter and colder and also with respect to the vessel the blood is received in if into a shallow flat vessel that much of its Surface is exposed the evaporation or halitus will be greater & vice versa - Soon after the crispe of this Wallitus the blood separates in two parts - the one solid or red called Crassamentum the other transparent or yellow fluid denominated Serum The Crassamentum is a compound substance containing

containing 1st red globules as they are generally called & 2nd Coagulable Lymph - The detachment of the coagulable Lymph from the red globules is what forms the Buffy coat of the blood observed in fevers and has long been considered a Sign of Morbid inflamation or affection of the System It was formerly more relied on than it now is for many circumstances wh are not connected with disease increase or diminish the quantity of the Buff Coat — The red globules may be Separated from the Serum by washing in water and leave the coagulable Lymph pure — The Serum is not homogeneous - it consists of a volatile matter wh when dissipated by heat leaves a coagulum behind The blood then consists of 3 principal parts to wit the red globules - Serum and Coagulable Lymph they are kept suspended or mixed together by the heat of the blood - we shall proceed to give a short history of each 1st the red globules — these Leeuwenhoec supposed to consist of 6 lesser ones on wh its color depend - this is a scientific error and is now wholly exploded from all the Schools in Europe — Dr Hewson has however proven that the

the globules are neither globular nor as Leuwenhoek supposed lenticular but flat - this I had once the pleasure of seeing in a very excellent Microscope of Mr Newsons of Europe Why do not these globules separate from the coagulable parts of the Blood? instead of the Serum as they unite so readily with water? for the same reason that alkohol and caustic alkali never unite - Some have supposed the red globules to be of an oily - Some of a watery nature - that they were oily was inferred from their inflamability - if that they were watery from their mixing with Water both opinions are false - if they are watery they would not be inflamable if they were oily they would not be so readily and perfectly diffusable through water - again - the coagulable lymph is not of oily nature is more inflamable than the red globules - as Mr Newson frequently proved to his class in London the Serum too is more inflamable when coagulated - A second question arises here - On what does the Color of the Red globules of the blood depend? Mr Simon answers this by supposing the Red globules to be lenticular and that 2 or 3 of them were compressed into one - as he observes the more perfectly they were compacted the more intense is the Color

Color — but allowing the globules to be Lenticular which are not supposed to be Mr. Senac's opinion is not accurate for the greater degree of Concretion should obtain in the veins as they are less agitated there but yet color is most vivid and intense in the arteries Some have explained it upon a Supposition it depends on the deprivation of Serum — this has much influence — Neutral Salts and acids do turn the blood to a black color — It remains for chemistry to have the true honor of the discovery of red color to the blood — the hypothesis of the Chemists by far the most rational that has yet been offered — they observe that the air of the Atmosphere consists of 3 different kinds of air — Phlogisticated Dephlogisticated * Mephitic or Carbonic acid — the dephlogisticated is the only pure air in Nature it forms according to modern writers the habitum Vitae — Animals cant live without this they say imports the red color that their opinion is accurate I infer

that

1st from the effects of this Gas wh is now called Oxygene, on other Substance as Metals — we see for Instance in Red lead and colcothar of Vitriol in fine air these Substances are formed — they are red and cleanned with fine air — 2nd from the effects of Substances containing it as Nitre producing Red color on animal Substance — as horn also common Salt — the more oxygene is in the Salt the better the color of the horns (*the Doct. must have illustrated it better with the effects of Nitre on beef.) 3dly I infer it from the quantity of Oxygene respired being attended with a proportionate red color as in the cheeks and limbs — a third question occurs here What is "what is the use of the red globules? on this Subject I can only offer probable conjectures — these are first that they prevent the coagulation by their interposition between the Coagulable Lymph — 2nd that they assist in the Secretions — and 3dly they Serve the important purpose of Nourishing as to these must be attributed the growth and elongation of the arteries The next part of the blood is the coagulating lymph — this is a fluid so called because

of its becoming Solid and uniting Substances or Surfaces — it bearing a very Strong analogy to the white of an egg — both coagulate by heat — perhaps of 150° — both coagulate by acids and both in the same manner — they both too have the properties of nourishing the animal — they however do differ from each other in the following circumstance — 1st the white of an Egg is more bland than the coagulable Lymph — 2nd the white of an egg by containing a greater proportion of Water is more fluid than the Coagulable Lymph — and it never concretes from cold as the latter does — I must think they are the same matter and designed for the same purpose — viz the nourishment of the animal — The Spontaneous Separation of the coagulable Lymph from the other parts gave rise to many Speculations concerning diseases — Boerhaave supposed it to be a Lentor or morbid Spissitude and he ever thought it the cause rather than the effect of disease — This, and in general

general the Idea of humoral Pathology are now entirely exploded — and this Buff coat affords as little ~~Prognosis~~ assistance in the Prognosis or diagnosis of Diseases as taken independently of the Pulse

In Some diseases — In Some diseases bleeding appears to produce the buffy coat — as it arises frequently after the 2nd or 3d Bleeding — in acute fevers — Many circumstances influence this Seperation as 1st the orifice through wh the blood flows if this be large the more will be Seperated than if it bleed very slowly — in the latter case coagulation takes place before there is time for the Seperation — 2nd the State of the vessel in wh the blood is received influences the Seperation — it is most completely when in a hollow wide vessel — 3d the materials of wh the vessel is made — most when the blood is received in an Earthen cup — the 4th cause was Supposed to be heat. but the reverse of this is the case — coagulates most in cold — but the contact of air has an influence on it hence the buff coat is on the Surface & not below! (Gravity does this 2 prop)

H. is the

the result of moderate inflamatory action of the vessels — a more violent action there is less coagulable lymph — and the blood may be cut by a pin thrust through it — it is curious that Dr Clephorn should call this dense blood, tis the very reverse — in still more violent diseases as the Plague & yellow fever the blood is quite fluid and as it is termed dissolved — this Occurrency only happens in highly inflamitory diseases — in some cases of Bilious pleurisy I have observed it the Buffy coat then is indicative of moderate inflamitory action — this part of the Subject I shall repeat with its application in Practice when I treat of Bloodletting 1st It has in some cases I have been informed induced by violent exercise as running this fact I am not certain of — if this be true there can be but little disease there — mere increase of action without inflamation — 2nd Sizy blood is observable in Persons who Labor under preter natural distentions as in Pregnant women they have almost always Sizey blood 3dly

3dly the approach of Spring of Spring often induce Sizy blood — hence a practice of the Germans to bleed in that Season to reduce a plethoric State of the System and their Blood is Sizy according to Doctor Simpson — Sizy blood may be induced by tieing a Ligature round one of the arms for a considerable time before bleeding — this was also observed by Doctor Mitchel in the Yellow Fever of Gergenia in the Year 1743 — 4th the last part of the blood I have to treat is the Serum This consists principally of Water and the Armoniacal Salt together with the Animal or Phosphoric Acid — the Serum generally contains great proportion of Coagulable Lymph — wh coagulates when the True Serum is evaporated by heat — Hence we hear that the Serum is so coagulable wh is not the case — Senak calls it the Serosity when in this State — The Holeus is probably the purest part of the Serum — This Holeus forms the water in the dropsey of the brain — Doctor Woodhouse has made experiments on the water of Hydrocephalus Internus wh prove that it is not coagulable like common Serum "What proportion do the 3 constituent parts bear

bear to each other? they vary very much in different constitutions — It is a matter of trifling consequence if we could even learn it — wh is a very difficult matter to do — "do any other Substances exist in the blood? Some have asserted that Chyle and Milk have been found Disengaged in it — of this there are no Satisfactory proof and I think the coagulable Lymph has been Mistaken for it — But I find no difficulty in admitting the probability of it as Chyle enters the circulation it may be for a time not thoroughly mixed with the blood but this is transitory Milk does not exist disengaged in the blood — Senac and Haller were deceived probably by a gelatinous matter wh I think was coagulable Lymph — does oil enter as a component part of the blood I have my doubts of it, the facts and arguments related by Haller in proof of this opinion are so few and so illy attested that I think he was deceived — is there air in the blood? I answer I believe there is — is it in an elastic state? I believe it to be in a semi elastic

state

state as we see it in Water under the exhausted recevr
of an air Pump — Dr Munro made experiments to
prove this he tied two Ligatures round the carotid artery
of a Dog so as to include a portion filled with blood
placed it under Water and pricked it with a pin and a
quantity of air bubbles were disengaged — a Second fact
in Support of this opinion is that blood Suddenly frozen
has cavities in it wh if pricked with a pin under
water yield air — Polypi arises from a deposite-
-on of coagulable Lymph on the abraded coat of an art-
-ery wh continues to increase by continued deposition
of Lymph wh if it exist in any of the large arteries
produce Death —

A very material Question accurs is the blood alive
? Does it possess irritability or contractility or a cap-
acity of performing vital actions? This opinion
is very ancient, that "the blood of an Animal is its
life" Mons asserted it. the opinion has lately been
revived by Mr John Hunter a Man whose contri
butions to Medical knowledge has been Such as render
most of his opinions deserving respect — and all of
his assertions worthy of consideration — I wish I
could adopt his Idea of the Vitality of the blood it would

would apart me in exploring Animal Life as it would afford a very extensive Surface for the action of Stimuli — But I cannot do it Mr. Hunters arguments in favor of the Hypothesis are 1st "that the blood unites living parts of the body as the Sap does in a Tree"

Had Mr Hunter been acquainted with a fact which any Gardner could have told him of in grafting he could not have fallen into this error it is that branches do not unite unless they be in close contact — 2d "the union of certain parts in consequence of ~~certain~~ inflammation under certain circumstances" — This is merely done by an elongation of the blood vessels and not the blood — "3dly "the Blood in the Stump of a limb after amputation is venulor" as Mr H. proved by injection — This I explain readily by the elongation of the Arteries through the coagulum — "4thly "in bleeding from the arm in a cold temperature "the same heat of the other living Animal "matter — This argument needs hardly to be refuted it requires its resemblance from the

Living

living Animal Solids - for it loses this tempera-
ture by being exposed to the air of the Atmosph-
ere whose heat is acquired — "5th blood is
"acted on by stimuli and shews signs of this action
"in coagulating" here I answer that cold or
is undoubtedly no stimulus is the cause of
the coagulation and that it is owing purely
to the abstraction of heat — "6th Animals
"are hearty and said to be alive in proport-
"ion to the blood the blood they have —

this I deny Inflamatory fever comes on
when the System has a great degree of Blood
or should not be the case according to this op-
inion — the different time in wh blood coag-
ulates in inflamatory fever sufficiently points
out its peculiar nature. the action of ye
Capils produce all the effects he ascribes to it
"7th Blood preserves life in different parts of
"the body" this is true and in producing this
effect it acts two ~~ways~~ ways first by convey
ing nourishment and secondly by its stimuli —
it acts as aliment precisely by yielding stim-
ulus and Nourishment

and

and yet you will hardly suppose that a loaf of Bread wh does this is alive! — No more is the blood — The dissolution of Blood may be supposed an argument in favor of this opinion — but it is as readily explicable by the actions of the vessels as by the vitality of the blood — Blood is then the remote cause of Life and also the Vehicle of Animal heat — Moses did not err in calling it the life of ye Animal it is the Spring of Life and the expression is not more improper than some now in use not only among medical men but writers Patite Literature who call what the Staff of Life and Pure air the Pabulum Vitae — Moses probably said it figuratively —

I lament the obstinate hardness of Mr John Hunter, it prevented very much his advancement of Science — but he had adopted a resolution wh he communicated to Dr Shippen never to give up any of his Sentiments or Opinions in Medicine till he gave up the Ghost —

we next hap

We next pass to a consideration of the Lympatics or Absorbent System here you will not expect a minute detail of the various opinions of Physiologists of their controversies respecting the System of vessels Such an enquiry would be useless and to you fatigueing I shall merely advance a few facts such as are necessary to explain the principles of Pathology and be usefull to us in the Practice of Physic — In the absorbent System is included the Lacteals and Lymphatics they are the same kind of Vessels differ only in the fluids which they convey — the one Lymph the other Chyle both open into cavities both pass thro' Glands and both have valves — they enter into the Thoracic duct and receptaculum Chyli whence their contents are conveyed into the left Subclavian as I observed when speaking of the Chyle — they may be described as a System of small vessels arising from the surface of the body and from the cavities. whose office is to receive certain matters and convey them to the blood — they pass through conglobate glands in their course — in the Lymphatics the following circumstances demand our attention —

1st They passes like the blood vessels meander

Muscular fibres and consequently contractile power — wh assists in propelling their contents this is proven by their Dilation or contraction when Irritated their Sensibility is proven by the pain and Swelling wh occurs in them

2ndly They are furnished with valves wh hinder the reflux of their contents in the Same manner as the veins —

3dly they are plentifully Supplied with nerves and blood Vessels and possess the circulation as the Vasa Vasorum of the blood vessels —

4thly they have mouths or openings analagous to the mouths of animals for the purpose of receiving the Substance they are to absorb — as fluids, flesh bones &c — this has been inferred not only from from their ability not only of receiving any fluid into them — but of feeding as it were on Solid Substance as bones &c — they have too been demonstrated in certain Fish —

5thly the Lymphatic glands appear to be a convolution of vessels — Tho' Doctor Munro thought them Cellular — Mr Hewson has proved them to be vessels connected by cellular membranes

membrane. Having treated of the circulation of blood of the Chyle and of the Lymphatic vessels and traced the course of the Chyle to the heart - it remains next to consider the formation of Lymph. This I shall next consider the next Lecture ——

Lecture 19th

Lymph Mr Hewson first supposed it to be a Secreted Liquor - it is coagulable and bears a great analogy to the coagulable Lymph of the blood wh I think it forms after entering the circulation - its coagulability is proved by the inflamations of the Pleura and in the cavities of the abdomen and Thorax resembling the buffy coat of the blood - Mr Hewson supposed the secretion of Pus to be performed by there some vessels wh secrete the Lymph - that Pus is formed by inflamation of there vessels - this doctrine wh was broached by my predecessor in this Chair Doctor Morgan has met with general reception - In what manner do the lymphatics vessels take up their fluids? this was

this was formerly explained on the Supposition of Capillary attraction - but I rather attribute it to the action of the vessels themselves on Liquids or Substances presented to their mouths

Now is the Lymph forwarded to the Thoracic duct? I answer first by the pulsation of contiguous Arteries - 2nd by the pressure of contiguous muscles and 3d by the Specific stimulus of the Lymph exciting action in the vessels themselves - the Valves serve to prevent regurgitation. Are there Lymphatic Vessels in every part of the body? I answer - I believe there are with the exception of the head - x Several facts make it presumable they exist here - 1st it is probable from analogy - In the Skate fish Dr Monro has observed them and we suppose from analogy that the human Subject also has them - 2ndly I infer it from the Phenomena of Disease observed by Mr Hewson viz a Palsy of one side of the head cured by the Swelling of a gland on the hip - this he supposed induced absorption and so cured the Palsey 3d I infer from cures wh have been

been made of Hydrocephalus after water has been effused - 4th ly these facts are to be explained only by Lymphatics - Veins are found not to absorb —

I have said the absorbents possess the power of absorbing not only fluids but also solid animal matter - the disappearance of the Thymus gland from the Thorax the disappearance of small fragments of fractured bones - the cavity and loss of substance in the bones of old people - the softness of the bones in some diseases - the appearance of bony matter in the urine - are all facts only explicable on this principle - again the disappearance of tumors and Worms without excision afford us an other proof of the fact - Mr Hunter found the ~~thigh bone of~~ Articulation of the Thigh bone in young people . . . . . .

hence it would appear that the arteries and Lymphatic System carry on a contest between themselves - their offices are precisely contrary the one to take away parts of the body and the other (the arteries) to supply fresh matter in its place - in this contest health consists - When they conclude an armistice Death is perhaps the consequence

or A

or at least Diabetis, Dropsey Hydrocephalus &c may justly be attributed to this Source — But these are not all the effects of the Lymphatics as they absorb moisture from the air of the atmosphere — this is proven by the increase of weight of a person during Rainy Weather — 2nd by the number of these vessels which open on the Surface of the body — 3d from the fact that Thirst has been removed in Shipwrecked persons by being wet with Sea Water 4th from certain Substances as Gralic and Turpentine when applied to the Skin being detected in the Secretions to wit in some cases in the Salivia but almost universally in the urine — attempts have been made first by Doctr Segeir of France and repeated by Dr Rohea a Gentleman who graduated in this University last Spring to overthrow this Doctrine — they endeavor to prove that absorption is carried on wholly by the Lungs — that the substance applied to the Skin becomes vaporized and returned and then absorbed by the lungs (See Dr Rapscans inaugural Thesis 1800) the experiments alluded to I do not think conclusive

The Action of the Lymphatics is excited first by the Stimulus of Distention. This we see in the Gallbladder. The yellow color of the Skin in many cases being owing to this cause 2nd again Distention of the Stomach as with Liquor in Dropsies offends an argument in favor of it as absorption is excited by this means 2nd Their action is excited by pressure — Dr Mumby mentions a case where the whole Sternum was absorbed by pressure of an Aneurism or Palpus in the base of the Aorta — Dr. Hunter likewise relates an instance of a portion of an Aneurism being absorbed by the pressure of a Tumor on the Scalp — in this manner the Pea used in Issues acts by promoting absorption from its pressure — Large ulcers are formed on the buttocks of People who have lain in bed Long time and this Stimulus of Pressure is the cause — 3d Friction promotes absorption — This fact is well known and made use of in anasarcal dropsies — in these the frictions Should be repeated on in the morning — 4thly Tonics promote it — In

In a letter from Mr Cruickshank to Mr Aire a case is related in wh vomiting caused a remarkable diminution of the size of the knee joint which was dropsical — produced accidentally taking Salt Tartar for Soluble Tartar — Mr Hunter relates a case of Bubo cured by vomiting — and cured by bein a Shit in the Channel) wh had advanced to Suppuration and he intended to have opened it the next day — 5thly Purging promotes absorption thus we reach heavin after the operation of a Purge by the absorption of Water from the atmosphere — Mr. Hunter accounts for the conversion of a Gonorhoea to Lues wh arises after to the injudicious prescription of Purges producing absorption of the matter — Electricity abstinence from food — debilitating passions of the mind and number of other causes — for an account of wh I refer to my observations on dropsies published in my 2nd Vol Medicing & Observ. —

The uses of the absorbent System are great and many — They serve for the growth and renovation of the body — 2ly They may be considered in the body as the Scavengers or rather as the Scavengers the Streets of a City

Swine in the Streets of a City wch feed on the offalls as it were and frequently absorb morbid matter — 3dly they preserve the fluidity of the blood by absorbing moisture from the atmospheric air when there is a scarcity of it from accident and thus prevent the disharmony of the fluids — Lymph is frequently found in the Cavities of the Body — in these cases it is secreted and not poured out from the ends of the Arteries — it serves in these cases to unite parts and the Serum and the red Globules are not affected with it as would be the case if it were not a Secretion — the conglobate Glands of ye Lymphatics perform this piece of Service — When we contemplate then the important use of the Lymphatic System we are struck with astonishment that this discovery was not effected till the year 1652 — let us learn from this fact not to place too much confidence in our Selves but to be modest and unpresumeing — to Posterity & not to value our ancestors too highly — perhaps Posterity may make discoveries of yet much greater importance than the Lymphatics Them Selves —

We next

We next hop to consider Secretion — but gentlemen I feel disposed to make a pause for a while I am sensible that after having frequently thought and studied the Subject — I know but little more of it than I did the day I commenced the study of Medicine — but yet I will proceed hoping in the course of my observations I may throw out a hint wh may serve as a clue to lead some of you into a more successful investigation of the Subject — I shall begin with a general account of the nature of Secretion — and some opinions how it is performed 2d I shall examine each of the Secreted Liquors separately and lastly I shall consider each of the excretions —

I Here I shall venture an opinion I consider the Liver as an excretory duct and not is taken for granted in common as a gland — but too I exclude from the Secretions and consider it as a disease — the structure of the glands I take for granted is vascular as the injections of Ruysh have put the matter beyond all doubt — the Secreted fluids are different from each other some are perfectly fluid & watery —

Watery as the urine - Some are bland and of a thicker consistence as the Mucus others are still thicker & colored as cor wax Some are colored and fluid as the milk &c. &c. all differing from each other materially - all these various Liquors are Secreted from the blood the question we are now to consider is how that and in what manner is this performed? The opinions on this Subject are various - Some have explained Secretion from the different Size and figure of the Vessels of the glands - Capable thus of admitting certain parts of the blood and rejecting others —

This Hypothesis presupposes the existence of all the Secreted Liquors in the blood wh the advocates for it have never been able to demonstrate

A Second Hypothesis is that a Species of Fermentation goes on in the glands - Sequin is of this opinion - one of the arguments in its favor is that Secretion is increased by certain Laxs they adduce analogies from Several Facts wh favor this opinion - it is remarkable that the various matter and Several others appear to increase themselves by Some Such process as Fermentation this matter only acts and is increased in one

posterior

Particular part of the body viz the Skin — Vomiting matter swallowed and taken into the alimentary canal produces no effects peculiar to it — the pus it excites only ensues from its action on the Skin for it may even be injected to the blood and no ill effects result from it — They also ask — Do not the passions and Emotions of the mind and the increased action of the nerves and Arteries wh are found to have a great effect on the Secretions act by creating motion wh increase Fermentation?

Mr Leibnitz to account for it has supposed that there are but 4 original forms of Matter in existence — and that all the different properties and appearances of bodies are owing to different modifications of these four original forms and combinations — — This opinion appears improbable when we reflect on the amazeing number of forms wh bodies put on as taught us by chemistry the very Atoms wh appear all similar — to be characterized by distinct properties — and the late new discoveries concerning water that it consists of two kinds of Air in fixed form — It is remarkable that the more aperous the Secretions are the more they become unlike the blood of wh they were formed

for

for instance the Semen — While those which are not so apparently conducted resemble it more as Mucus. Milk Urine &c does not this afford an argument in favor of fermentation? as we see the Same takes place in that secreta ent of the body thus ale wine differs most from the original juice of the grape — where as Beer and malt Liquor taste Sensibly of all the parts of wh it is compo sed

This Gentlemen I have just lifted up the Curtain I have no doubt but in time the whole Series will be unfolded I Shall conclude this part of the Subject by observing that the glands may be compared to the Closets of a convenient house containing different kinds of Aliment for the convenience of the Servants —

II We next proceed to the Secreted Juices — they are Lymph Saliva Gastric Juice Pancreatic Juice Mucus Synovia Urine — Semen — Liquors of the Prostrate Gland Milk — I had formerly Some hesitation in admitting the Urine among the Secretions, but the Structure and functions of the Kidneys have done away my objections —

First of Lymph

Lymph this I have treated of under the head of Lymphatics - I ~~attributed~~ attributed the coagulability of the Serum of the blood to the Lymph it contains - and observed that that found in Hydrocephalus internus is not coagulable nothing new occurs on Lymph I pass to

Saliva this too I hinted at when on Secretion it contains much Mononacal Salt - I observed that it acted as a ferment in our aliment - the quantity of it Secreted in a day is about 12 ounces —

Gastric Juice contains a quantity of the the Same Salt as Saliva - when treating of digestion I spoke of its wonderful Solvent powers this I observed differs at different Periods of Life being stronger in old People than adults - this I said was a wise provision of nature to obviate the ill effects of imperfect ~~digestion~~ mastication —

Pancreatic Juice the nature of this fluid bears so strong affinity to the Saliva and is the same nature as the Saliva - a question has arisen respecting its action may it not be to mix with, and blunt the acidity of the ~~the~~ Bile —? Mucus

Mucus is situated in a great many parts of the body. its use is to obviate the effects of Friction from external as well as internal causes and also to prevent the action of Irritating Fluids or Substances hence we find it situated in the Oesophagus non Trachea — Stomach Intestines Urethra and Vagina in Some of these parts a covering of it is absolutely necessary — If for instance a part of the Trachea become bare of Mucus the very air produces an irritation that excites coughing —

Synovia The Synovial Liquor is Secreted exclusively during the Night, this is proven by the difference of our Size in the morning and evening half an Inch difference is observable — Soldiers are acquainted with the fact hence before they admit Men to their different companies — they measure them at Night — Its use is to prevent the Friction of the bones —

Urine This contains much Ammoniacal Salt a peculiar Fatted oil in Small proportion and a portion of acid oil is of the Animal or Phosphoric kind also colouring Tooth and a large proportion of acid Serum — A number of circumstances influence the Secretion of Urine

Heat

Heat diminishes and cold increases the Secretion of urine they have been explained from the greater perspiration in hot weather than in cold — Fluids taken into the Stomach cause so quick an evacuation by urine that it has been supposed there was a more direct passage from the Stomach to the bladder than by the Kidneys Some explain it by peristaltic motion — The College of Physicians have on record a case communicated in a Letter from Dr Senter of a discharge of Urine and urinary calculus from the Stomach this case appears to favor the opinion but may it not be explained by supposing a translation of the Secretion to the Stomach? as of the Senses and we before said suppose a translation in some cases? Cases of vomiting of urine are recorded elsewhere and the fact is I believe undoubted — Certain Passions and affections of the mind have an influence on Secretion — Fear increases it very rapidly Study has a similar effect — hence Studious People are frequently at Night to void their urine

Semen. This has a disagreeable smell

and Mr Hunter

Mr Hunters Idea that the Fluid Secreted by the Testicles is not the same as that found in the Vesiculae Seminalis is entirely Hypothetical — This Secretion is commenced at Puberty and its being absorbed into the System has been supposed to be an explanation of the change induced in the System at that age — but this is rather an effect of that Change — For Change takes place in the Female Sex at that age & they have no semen to absorb — in abstinence from Venery it becomes thick by absorption of the thinner parts of it — but in excess of venery or in that fatal vice Onanism makes it very thin and Watery — Blood has been known to be ejected in the latter Case — In old men its remidity is probably increased & now & then gives them pain in its expulsion —

Liquor of the Prostrate Gland — This fluid is of the Nature of Mucus. No important use has yet been assigned to it — from what has been said of the Semen — may it not be to cover or blunt its acrimony and prevent

prevent its injuring the Urethra? and also afterwards in the Vagina —

<u>Milk</u> The Liquor is the Simplest of the Secreted fluids and of course the most like the blood — The Milk has been used as an example of Secreted fluids existing formerly or disengaged in the blood Vessels but I doubt the fact of its having been found there — I think the Coagulating Lymph has been mistaken for it — Some say it is Secreted from the fresh Chyle before it is mixed with the blood — and this I am disposed to believe — Milk however is not pure Chyle — It undergoes the process of Secretion — and is to the Chyle what coagulating Lymph is to pure Lymph before it enters the circulation — the quantity Secreted in the Course of a day is perhaps more than the quantity of blood in the body to wit 60 pounds in a cow in 24 hours — another fact wh renders it probable that Milk is Chyle somewhat altered is mentioned by Dr. Percival — he found the Chyle wh he procured fresh

Fresh from the animal he found it become acid and undergo nearly the change as milk — volatile alkali ... blood . . . . . .

The Milk consists of 3 different parts to wit Oil Mucilage and Serum or Water it may be considered as an Animal . . . . . — The oil may be considered as its vegetable part the Serum of the milk is usually called Whey — it contains a large quantity of Sugar according to Dr. Young 4 ounces of the Whey contains 64 grains of pure Saccharine matter hence we understand why milk is so nourishing — it contains all the 3 nourishing principles — oil — Mucilage & Sugar — hence it produces disease from plethora in some weakly people — the Secretions of the Milk are influenced by the passions of the mind Instances ~~have~~ are recorded of children getting convulsions from their Mothers Passions — It is Strange that the Milk is not the Vehicle of disease instances are recorded of children Sucking Nurses affected with Lues Venerea without contracting that disease — & Dr. Cox relates in the Philosophical Transactions that he sucked his Moth

er

Mother when sick with the plague as she informed him without his taking the disease. When Disease is contracted in that way I believe it is by the breath — we pass next to the consideration of the Excretions. There are Faces, Bile, & perspiration — Some reckon Sweat to be a peculiar excretion but I believe it to be only the perspirable matter excreted in greater quantities and condensed —

Faces Alexander the great is said to have observed after he had conquered the world that if it were not for his passions for the Women he would think himself a God — Had he said that, the daily discharge of his Faces wh he was forced to do as well as the meanest of his Slaves, he would have spoken of a much more universal characteristic of Mortality — The Faces are precipitated from the aliment by the bile. they occupy the intestines and putrify in them — by their acrimony and weight they stimulate the Rectum and are discharged in health daily

the

tho' this is not unanimable, some are of more costive habits than others — by distillation they yield a volatile oil and an acid

<u>Bile</u> I formerly supposed the bile to be a secretion, but from having read an excellent treatise on the bile by Dr. ~~Clarg~~ Mc Clurg I am induced to believe it an excretion from the septic tendency of the bile — from the pro cess of its formation being performed by a vein — whereas other glands have arteries to supply them with blood — I have inferred it also for many other reasons — as its increased acidity in bilious fevers — and from the passions of the mind increasing the flow of bile which it does by increasing circulation — Exercise of the body causes it to be increased — hence the bitter taste in the mouth after violent exercise — its bitterness ~~affords~~ another argument in favor of its being by a septic process — as in a rotten apple — hence its excretion is increased during hot weather — it possesses on the whole more of the properties of an excreted than of a secreted fluid — it being discharged in the scuttle fish near the anus as doctr.

Munro

Dr. Monro has observed as another argument in favor of its being an excretion – Its acridity is blunted as before observed by the pancreatic juice Bile is evidently antiseptic to other Substances tho the product of Putrefaction – it prevents this pracess in meat – Now this happens is curious but similar facts obtain in natural and well as the moral world – Note the result of Putrefaction are prevents that pracess in animal Substance – Again the green Substance we find the product of putrefaction in Stagnating Water forms a pellicle over ponds wh not only prevents the rising of the Noxous effluvia but purifies the air by respiring dephlogisticated air – a Shower of rain or any other cause wh breaks this pellicle produces disease in the Neighborhood by allowing the escape of this effluvia. – In the Moral world we have innumerable instances of evil curing evil however simple this Theory may appear it is no less admirable – In contemplating the Liver I have been induced to compare it to a manufactory of Salamonia where all the animal effells are collected and made

into

into a nice medical ~~medical~~ Salt - on this proof however nature for exceeds art in carrying it on without Smell - The natural color of Bile is yellow tho' from Some unknown cause it is frequently Green and in Malignant Fevers its color varies brown & even black - this color I think it acquires in the alimentary Canal - the blood is observed to vary in the Same manner in certain diseases - and I suppose from an entrance of the bile into the circulation I have Seen blood probably from this cause quite black as if Ink had been mixed with it - The peristaltic motion of the bowels is accellerated by the Stimulus of the bile — Emotions and Passions of the mind I observed increase the excretion of the bile — I once knew a young Gentleman who received an insult at a Friends house wh. he could not decently resent - his anger was allmost uncontroulable - he returned to an alley in the Neighborhood and relieved his feelings by discharging by vomit a large quantity of Bile from his Stomach - This emotion of anger has been always known to produce this effect - Some Passionate People subject to anger are termed choleric - Horace in describing an angry man Says - "bile tumet Jecur."

Fever" the bile by analysis yields oil water & Phlegm and an alkaline Salt - they do not exist combined in form of a Soap this Idea is entirely Hypothetical - The quantity of it in many diseases is very great hence the term bilous fevers &c ——

Perspiration . It may be asked how have we proof such an excretion to exist - I answer by a very simple experiment - by wiping the arm perfectly dry and putting it into a cylindrical glass vessel - vapor will be condensed on the side of ye vessel wh is the perspirable matter or by holding a piece of glass over the Skin when it will be collected on it (or condensed on it) . It has been said it may be seen by very fine glasses placing 2 or 3 inches from the arm - If the perspired matter secreted or discharged from the extremities of the Arteries ? - I answer I believe it to be effused from the extremities ~~of the Arteries~~ Malpighi and Boerhaave were of this opinion - The latter by a very scrupulous injection of a fine fluid is said to have perceived the the injection wh he forced into the Arteries exuding through the pores of the Skin — What is the Nature of the

perspired

Perspired Fluid? it contains 1st phlegm and Water
2nd Salt - this is evident from the Saline taste of
the hand when sweaty and also from the taste of
clothes wh have been worn a long time without
being washed — 3d fixed or Mephitic
air that it contains this gas we infer not only
from analogy with the Lungs but by actual
experiment - if a candle be placed under the bed
clothes of a Person who has slept all night under
them it is extinguished — 4th a certain odour is
always present in the perspiration especially
of hands of working people in whom it is more
marked thus it has been proven from experiment
that the air of a given Space is more vitiated
by 2 Carpenters at work than 6 Watch-
makers at work the Same length of time — dogs
are able to distinguish their masters merely by
this circumstance of Perspiration - a dog rose
till his master and traced his foot steps among a
thousand others merely from the peculiar odor of his
perspiration - I mentioned when treating of
the Senses that Le Cat mentions a case in
wh a person was able by the perspiration to

to distinguish a Virgin from a married woman — I also admired the instance of Brahmans who are able to distinguish persons who eat meat from such as live on vegetable diet merely from the Smell of their Perspiration wh is influenced powerfully by this circumstance of diet — Disease has an influence on the Smell of the perspired matter — hence the yellow fever is distinguished from other Fevers by Some — according to Mr Lang of Green Land a bays perspiration was so much affected by Swallowing Spirit of Turpentine that he Smelled of it 5 weeks after ward distinctly So that Medicine may be considered of one of the causes wh influence the Smell of Perspiration this fact Gentlemen is of use in Shewing you how long the Seeds of disease may in Some cases remain in the System without being called up or excited into action —

Dr Jackson Says that they remain Latent a long time in certain cases and I believe it as in Hydrophobia — after the volatile parts of the fluid of perspiration have been

been Separated by heat a gelatinous matter remains behind wh has been supposed by some to be Secreted by Sebaceous glands — but this cannot be proven and I think that Boerhaaves experiments prove that it is poured out by the arteries ——

Is Sweat Secreted by Vessels different from those wh pour out the matter of perspiration — I answer Sweat differs only in quantity from the former — It is poured out by the arteries in a relaxed and dilated State wh is caused by heat and other causes — Wha quantity of it is excreted? I answer more than by the Urine Stool and all the other excretions and Secretions in a given time — Its quantity differs as to age in a healthy adult It is perhaps 33 ounces in 24 hours 2nd It differs as to Season in Summer perhaps 6 times as much as in winter viz 3 lbs in Summer and ½ pound in winter — in moderate weather it averages about 33 ounces in 24 hours — 3d debility — hence the difference in quantity among the

Sleeping

Sleeping and waking States — It is much more copious in Sleep — Calculations of the quantity have been made whence it appears that as much is excreted in 5 hours Sleeping as in 7 hours while awake — that from Supper time till 6 hours after having eat Supper 6 times as much is excreted as between Supper and the 5th hours So that the longer after Supper lie the 7th hour the more is excreted — emotions of the mind have an influence on it — Fear increases much the quantity of this discharge — Dreams Motion — Passions of the Mind — the gratification of the venereal appetite all influence it — hence they are under the inspection of Stimulus — a great degree of harmony exists between the Kidneys and the excretion of Sweat — Cold diminishes the former and increases in the same proportion the discharge of Urine — When it is retained debility is the cause and Fever is produced by the fullness and tension then creating — Lets more of this when we come to Pathology — the, next subject under consider

The next Subject in order is Nutrition this I shall consider Tomorrow —

Lecture 20th.

On the Subject of Nutrition — two opinions have prevailed — one that the body is nourished by the Nerves — and that other that the Arteries perform this Service to the System — I adopted and formerly taught the first of these Theories wh. I learned of my Master Cullen — but I have since been convinced that the arguments from wh. I had formed my opinion was false & I have of course adopted the latter Theory — the fact I allude to was that the brain was evolved before the heart and Arteries —

But this opinion is refuted by Dr. Munro who believes that the arteries nourish the body has proven that the brain is not evolved prior to the heart — Dr. Haller has proven that the heart and arteries are formed prior to the brain and nerves in the Chick in 200 — in 38 hours after in incubation — in 45 hours the vessels of the

of the heart and auricles were formed — the heart not till the 41st hour the Eyes not till the 51st in the 120 hour the brain was watery in 168 like Mucus — in 131 hours ..... These facts prove the priexistance of the heart and vessels to the Brain & nerves — Monro .....

The first impulse appears to be of the blood upon the heart and vessels — these are excellent conductors of Stimuli and act 2nd on the Brain and nerves — these 3d-ly react and by their Stimulus excite the heart and vessels — after which they appear to act reciprocally on each other and life results from this reciprocal action — the first Stimuli is the blood — then the arteries heart &c — I agree with Dr Valli in supposing the brain to be the extremity of the Nerves and the other ends the Origin of them — they originate from different parts of the body and terminate in the brain

The reasons wh exclusively of the above facts induce me to conclude that Arteries afford the nourishment of the body are 1st from the great ~~disposition~~ disproportion of the brain to the body — ~~than of brain of an~~ ox wh would not obtain if the Brain nourished the body — Thus the Brain of an

ox

ox is but one fourth as large as that of a Man & yet an ox is Six times larger than a Man —

2ndly according to Dr. Munro Monsters who are born without Brain are nourished as well as those who have them perfect — now this could not be the case if the Nourishment was derived from the Brain —

3rdly parts wh have very Small nerves ~~have~~ as well nourished as Such as have a greater quantity distributed to them — 4th Dr. Monro destroyed the Sciatic Nerve of a Frog — the Frog lived for Several years after it & his leg was as well nourished as the other one and wounds made into it healed as before — 5thly another proof that the blood vessels do perform the office of nourishing parts is that Madder by entering the circulation & passing through the Vessels into the Substance of the bone color it red — Madder could not be conveyed by the Nerves — 6thly the Kinds of Matter are So variously Supplyed by the blood — the Nerves contain always a Similar fluid, at least it is probable — 7thly the Secretions performed by the arteries ---

- - - - - - - - - - - - - - - - - - - -

From this view

view we see the importance of the Blood vessels — It has been the misfortune of Medicine that this importance has been ever looked in most of the Systems of Medicine — Boerhaave attributed the change of the body by disease to alteration in the properties of the blood and overlooked the Vessels altogether — Cullen on the other hand ascribes the phenomena of disease to the Nerves — In this he was followed by Dr. Brown — The Nerves form the basis of both these Systems of Medicine — If I have contributed by my Studies & Labor to the advancement of the Science of Medicine — it will be my having made the Sanguiferous System ~~my~~ the object of my attention whilst at the same time I hope I have not entirely overlooked those of my predecessors just mentioned

Chapter III.

Hitherto we have considered the functions common to both the Sexes we come next to those wh are peculiar to each — or to the peculiarities wh distinguish the Sexes — they are such as depend on the body and such as depend on the mind

1st The peculiarities of the Female body — They

First. the peculiarities of the ~~Body~~ Female Body — they are general and local — the general are first. Women in all ages of the world and in all countries have been and are less than Men — They arrive at their full growth sooner than Men — 2ndly the Texture of their Simple Solids is looser than than of Men — their bodies are less firm and compact — Dr. Monro was able from this cause and the firmness made by the pressure of the Arteries on the bones being stronger in women than in Men — wh in consequence of this he was able to distinguish between a Man and Womans Skeleton — 3dly the Arteries of Women in perhaps more contractability than those of Men — owing to the laxity of their constitutions — It is remarkable also that the descending Aorta is weaker in women than in Men — 4thly the Nerves in women are more Sensible than in Men — hence they receive stronger impressions, both of body & Mind than Men — Their nervous System being more excitable — 5thly the Brain in women is more liable to motion than in men — The Local peculiarities are 1st The Pelvis is wider in women than in men — hence they are able to retain their urine much longer than

than Men 2ndly they have a hollow
vessel in the Pelvis wh men have not. the
Uterus - with its vessels and apendages for the
accommodation of the Foetus - 3dly their exter-
nal organs of Generation differ from those of
Men - 4thly They have a periodical discharge
of Blood from the Uterus & Vagina - 5thly
They have 2 Glands Situated one on each
breast for the Secretion of Milk for nourish-
ment of Children. - 6thly The Thorax moves
more during respiration in women than in
Men to make room for the uterus in Gestation
& hence we See the respiration much more
plainly in Girls than in boys - Lastly the
voice of Females is much more Soft and Shrill
than that of Men - Thus far we have con-
sidered the the obvious peculiarities of the body
but we must carry our ~~enquiry~~ further for I
include the Mind in my course of Physiology

I am aware that the generality of Philosophers
Suppose the peculiarities of the Female mind to
depend on education entirely - with this opinion
I do not coincide - there is as much original
difference -

difference stamped by the hand of the Creator between the minds of the Sexes as ~~between~~ in the body

These differences appear first in the understanding — this in women is less vigorous and comprehensive than in Men & is less "incomprehensible" —

2ndly in Imagination Women are inferior to Men — in fancy they perhaps exceed Men but imagination they do not possess in so much perfection hence we find the Poetry of Women is very good but is never Sublime — Who ever knew a woman with an "Iron Imagination"? Such an one as Burke possessed? — 3dly the memory in women is greater for words and events than in Men — but for Ideas they are inferior — they recollect words & events most perfectly wh an approached with pain as that of Child bed — on this account of Memory for events they have been stiled "living Almanacks" — the Indians commit all their transactions to the women — & in cons of Treaties or the like where correct information respecting events is requisite they are always called upon — 4th Women are Superior to men in that Faculty of the mind wh we denominated Taste hence their Ideas of propriety & impropriety are quicker and more accurate than those of Men

4t

It depends in them wholly by imitation on this thing excepted men — From this circumstance of ye Superior taste of Women young Men derive much of the polish of wh they are possessed by being in company with women — 5thly the Moral faculty is more perfect in Women than in Men hence we see them possess Sensibility and acuteness in this respect than men — Women have the Sense of ye Sense of Deity in a Greater perfection than Men — this may be owing to their Sedentary lives and being more alone than Men & less exposed to the circumstances of life wh may have a tendency to obscure or diminish it of course women are generally more religious & devout than men

A Fact occurs to me now Gentlemen wh I should have mentioned when Speaking of Memory — it is that the wife of Dr. Cullen possessed it in her latter days to such an amazing degree that She could tell the employment, pleasures manner of her Spending her time or any trifling ~~circumstance~~ event that occurred during the last 6 or 7 years of her life — if for instance you Should ask her how did you Spend the evening of the 5 of July 1797.? She could immediately answer and describe the company She was in or any circumstance that happened — To return

women

To return - Women possess more charity than Men and hum-
anity but less actual Benevolence — hence we
find very few Female Citizens of the world Society — County
and the like important things they take no interest in
— Women have less concern than Men — This I explain
from its not acting in as much force in them as in
Men — They are less expand to cons in wh the conscien
is concerned than men are of course it does not act
in them with as much vigor as in men — Mr Hume
explains this by supposing the early dissimulation
wh they learn from the mod of life & and instruction
to be the cause of it but this I do not believe
they are of course less extinguished by their vivacity
than Men — — The apperations of the Female
mind Differ as much from the Male as its Faculties
— They have quicker perceptions than Men but
their Judgment and reasoning powers are by no means
so great — Women have more fortitude than
Men but less Courage — The former consists in
being passive the other in an active virtue of ye
Mind Women are more inclined to Secrecy than Men
they are more communicative of Secrets than Men
but they are the Secrets of others not their own —

Men on the other hand are communicative of their own Secrets and tenacious of the Secrets of other People – Women are less forgetfull of the resentments and less forgiving of Injuries than Men this the effect of weakness in them – great minds have no occasion for revenge – Women are less influenced by the venerial desires than the men and more delicacy and modesty than the latter – Are these differences the result of Education? or they innate and instinctive? I incline to the latter opinion Mrs Wolestoncraft the author of the Rights of women supposes the only difference between the Mental powers of Women & Men to be owing to Education – this celebrated writer and Helvetius are both wrong the opinion is hypothetical – it is assumed – there is there is certain an original difference stamped by the hand of the Creator in the womb – we see it in the earliest infancy – who ever saw a boy delight in playing with a Doll? or a girl anticipate riding on horse back by straddling a Corp a Cane? Observations made to any ..... between the mental powers of the two Sexes – I am a mere Masculine Women & effeminate Men

Man — Cant they can only be considered as an exemption to the General Rule —
Let not the youthfull Champion of Female excellency suppose the above observations made from a desire of respect for the Sex — Far from it Gent — the Man having less reason to admire and respect and Love the Sex more than I have — but that there does exist a contrast mental & well as corporal I am convinced. and it is right there should be —
My opinion on the Subject is as Consonant with reason as it is with divine Revelation — I Shall not make any apology for having treated of the Subject as fully as I have done — It ought to enlisted in a course of Physiology — the man who is unacquainted with the above facts is incapable of prescribing for a disease —
From the Structure of the Female constitution arises that Monthly discharge of blood from the Menis denominated the Menses or Catamenia 1. this discharge of blood wh occurs periodically is confined to human Species. the female Monkey perhaps excepted) 2. it occurs at different ages in different countrys — in the Middle of the united States it occurs about the 14th year — & in people in high life Sooner than in Lower as

are exposed to hard labor — and sooner in women who are much out of doors than in the sedentary There are many exceptions to the time of its commencement — I knew 3 children in this City in whom it occured under the 7th year — of these two were of one family — Dr. Waller mentions seven instances in wh it occured in the 1st 2nd & 3d Months of age these occurrences are rare — At the time of this appearance the Breasts begin to swell — the lips become more brilliant the voice more melodious and the whole system & deportment undergoes an agreeable change — the venereal appetite is now felt — 4th — there are exceptions to the time of the cessation of the Catamenia — in the middle States the usual time is from the 45, to the 50th year — but some old women have them till near their death the Old woman in this City whose age was 100 years had the menses 80 of them — unless she was pregnant or giving suck — . In some they return again in extreme old age after they have ceased for many years — a case of this occurred in the Pennsylvania Hospital in a Mrs Sinclair after she had ceased for 25 years in her 70th year she had a return of them —

Thus

Ten never reach at month Period

This fact I have ascribed to a disposition in the System to renovate itself and attempt at the ante diluvian age - It is like the recovery of Light & hearing which often occurs in old People - we see to the same renovation take place in trees with the difference that it occurs in the latter every year in the former not for 80 or 100 years - it has an analogy too with the renewal of the teeth wh. old people some times experience - this and many other facts induce me to suppose that there will at a future period be a renewal of the antediluvian age but more of this hereafter - 4th The menses cease ~~sometimes in~~ sooner in women who Labor or use that exercise in the open air

5th They cease during pregnancy & suckling some women have the discharge in those states but it is from the Vagina & not from the Uterus - It commonly re-occurs about the 11th or 12 Month after parturition and is a Signal to wean the child and renew the business of child bearing - The quantity of the discharge varies in different seasons it is generally from 3 to 5 ounces - prepared of no marked quantity or peculiarities - Its period of continuance 4 or 5 days and its time of retribution once in every Lunar Month

in

in Warm countries it is most in quantity - perhaps from this circumstance and the filthiness of the old Jews - the opinion originated that the blood thus discharged was unhealthy & unclean - hence connection with a menstruous woman was forbid and anything very filthy was compared to a menstruous cloth -

The Jews even now have no connection with their wives till 2 weeks after menstruation in those hot climates

The important Question arises here - what is the original design of the Catamenia? 2d what is the cause of its Monthly recurrence? 3d what good purpose does it answer in the female Oeconomy? - Dr Brown in answer to the first of these questions supposes it arises from the Stimulus of the Venereal appetite - but this opinion is as foreign from the truth as it is from delicacy - for I have seen it in many cases where the chastity and delicacy of the person would preclude such an idea - and in many cases the System is debilitated below the point of this appetite - but here it may replied, that it continues from habit - I would then ask how are we to account for it in cases of mania where the disease appears before this Emptio? Dr Brown must be wrong

a second

A second opinion on this subject is that it depends on fermentation in the blood of the uterus - & hence the supposed ill quality of the Menstruous blood But this we know cannot be so in the living Animal - a third opinion - a third opinion has been that there is a sinus in the uterus in wh the Menstruous blood is deposited and accumulates monthly in the uterus sinus - and congestion then to be the cause of it - but anatomy has proved there sinuses to be mere veins distended in Pregnancy with blood -

The 4th cause wh has been supposed to induce it is Plethora this is now the unversal opinion in the subject with the exception of Dr Brown -

This plethora is either general or partial - I believe it to be both - General & also that the uterus is more particularly Plethoric -

I infer it 1st from the general laxity of the arterial system of females 2nd from the discharge in some cases being made from the lips & mouth lungs eyes ears legs and in some cases from the ~~teeth~~ lips of the ~~fingers~~ - all of wh are explicable by plethora of the arterial system

3d

I am sure that several Authors to this have mistaken the Discharge

3d it has been considered as an objection that it occurs in diseases where the System is debilitated — as in Phthisis Pulmonalis but the objection will be removed when we reflect that in this disease there is the process of digestion and Sanguification as completely as in health So that the System of persons labouring under Phthisis Pulmonalis is often Plethoric — hence Haematosis common in that disease — and the Menses may be strictly considered as an Hematoesis of the Uterus — we have to bleed more in Phthisis Pulmonalis than in allmost any other disease owing to the plethoric State of the System in Phthisical Patients

4th The System during the time of Menstruation is more Liable to disease of an inflamitory tendency — hence bloodleting is more proper in that case — tho' this is contrary to the old custom to let nature relieve herself by this process — another objection to the Theory of Plethora is that bleeding in Plethoric people does not prevent discharge — but this proves nothing for the Laxity of the Vessels of the uterus remaining is a Sufficient reason why the blood makes its exit from that part — Doctr Munro has proven that no valves exist in the Veins of the uterus and Doctr Saunders as well as he has considered the

the Menstrual Blood as a Secretion — how this is I am determined in my own mind —

[I What is the cause of the periodical return of the Menses? That the Moon does not influence it I infer from the fact that all women do not menstruate at the same time as would be the case if this were true — its regular recurrence I have explained in the principles of association of Ideas and motions wh shall be considered more fully hereafter —

The third and last question is — What purpose does it answer in the Animal Oeconomy of Females? — The usual answer to this question is that it serves to nourish the Foetus in Utero — The objection to this are 1st that the Females of all other animals have no such discharge — 2nd the quantity of Blood discharged derived thus to the Uterus is too inconsiderable to explain the nourishment of the Foetus — not more than 36 ℥ during ~~pretension~~ gestation — 3d Women have been known to bear Children not only before but after the Menses had ceased to appear — Instances of this are recorded by Dr Haller — one of wh had a Child 15 years after the period for Catamenia & in some the menses never disappeared — This

This is a difficult question to decide on but it may be regarded in me as a Proof of Philosophical Cowardice to Shrink from it - My opinion on the Subject is as follows - Brutes are known to lose the Venereal appetite only at certain Seasons at these Seasons they a Slight inflamation a Swelling & efflux of Blood to the genital parts - there is also a discharge of Mucus wh in Some instances is tinged with blood - now this is designed I believe merely to increase the Sensibility of the Organs of generation and the distention of the Vagina & Uterus has the Same object to render the pleasure greater & make conception more certain - that the mucus is increased in the parts is certain and that it increases the pleasure in the connexion of the Sexes is probable from the fact that women who labor under Gonorrhoea are highly Libidinous 2nd Facts render my opinion of the design of the menses probable - 1st that Dr Boerhaave mentions that women become pregnant more readily immediately before and after menstruation than at any other time - out of 100 births he says 99 were conceived either immediately before or after menstruation - 2d that Women who Suckle children seldom become pregnant till they have menstruated once or twice

one

one fact here militates against our opinion & that is that Women have born Children before & after the appearance of the menses - we before observed that the Venereal appetite commences with the menses - it is manifest that generation goes on before it but these Cases can only be considered as exceptions of the General Rule - for an equal departure from nature takes place when we see women Menstruate during Pregnancy - yet this fact is not supposed to militate against the Supposition that the blood is descend to Nourish the Foetus -

Whether the Female Monkey has a constant Venereal desire is not yet ascertained - it is certain that the male has at all Seasons - does not his analogy if it obtains afford us a good reason for our Supposition -? That a certain degree of distention or Sense of fullness sensibility is necessary to conception I am convinced -

Let us next enquire into the Peculiarities of the Male Constitution, here we need say but little as we have mentioned the different Functions of the Animal as going on in the male and afterwards pointed out where the female constitution differs

from

the ideas is correct the sign of a Dis. the venereal appetite commences with the menses of the nature of the Menses

From it I shall only mention here the external organs of generation wh you will have to mon advantage from the Anatomical Chair — I proceed to mention the changes wh the male Sex undergoes at puberty — These are — an enlargement & spreading of the bones of the nose — 2nd a certain hoarseness in the Voice accompanied with a cough called "the 14 year old cough or cold" an eruption on the Chin & face followed soon a beard — Venereal desires are now first experienced — The whole System undergoes a change becomes more Vigorous and Robust & the mind suffers as great a change as the body it acquires a Vigor to wh it was before a Stranger — This change usually occurs about the 14 year tho' some latitude is here allowed — Nelle has known cases where the Signs of Puberty made their appearance before the 3d year — a second sec

The above change have been by some attributed to an absorption of the Semen and its Stimulus the arguments in favor of this Hypothesis are derived from Eunuchs and from the number of Superfluous Scales about the Testes & Seminal Duct

The Idea is entirely Hypothetical The use

The use of the Lymphatics is merely intended for the purpose of carrying away all Lymph from the Semen and leaving it as pure as possible — 2d It may be accounted for from the Stimulus in the Epididymis Seminales and Sympathy with the whole System the Stimulus has in some cases produced mania & even Death & again they cannot prove the existence of Semen in any part of the body but the vessels adapted for its secretion & retention wh they could do were it absorbed we infer from analogy but it acts in the way I mentioned — Wine & Opium produce effects on the Senses & Mind some what similar to those of puberty — Vigor & exhilaration long before they can be supposed to have entered the circulation — again the alteration wh takes place in the System during Pregnancy has some analogy with these — Nausea & in some cases Syncope are induced by the Stimulus of distention in the womb by Sympathy with the Stomach — This produces in some cases an enlargement of the mouth & change in the color of the Skin called by the good Women Mark — In Females the change at puberty may be explained by the tension induced

a Stimulus to the vessels in some animals

the use

on the aorta of this be destroyed they become fat in the same manner that Eunuchs do who have the stimulus of the semen obstructed in both these cases direct debility is induced wh predispos's to obesity wh I consider a disease — The same thing happens from the destruction of any other stimuli — deaf people become longest from loss of hearing — The shullings of the voice and loss of beard in Eunuchs I attribute to the same cause debility. In healthy men the sudden obstruction of this stimulus from excess in venery is attended by loss of the same debility — Nothing can be inferred from the minutiae of Lymphatics except that nature has been careful to take away all superfluous moisture from the semen — Farmers well know that debility is induced by castration or ox is by no means so strong a built as a gelding is never so good a saver as a stone horse owing solely to this cause. The fluids at liberty are more attenuated & hence the smell perceivable in some animals at that time — This merely arises from a more vicorous circulation wh increases the tone of

the

of the whole System, this is most observable in hard working people - The operation of the Semen then seems to be merely by its Stimulus — we have now gentlemen brought the 2 Sexes to that period of life in wh they are able to perform the duties of Propagating their Species - in brutes the venereal appetite is coeval almost with their existance - But in Man the case is far diffr and it is proper that it should be so - the brute creation have their Sustainance prepared ready for them the moment they emerge from the Mothers womb - but Man has to "Earn his bread by the Sweat of his brow" and it is right he should learn how to maintain a Family of Children before he forms connection wt he knows is calculated to produce one —

Lecture 21st

At our last lecture we considered the Peculiarities of the Sexes and considered there is that period of Life when they are to propagate their Species - in Women 16 is the earliest & in men 21 for Marriage - the latter they leave as 24 in

women

and 30 in Men & say provided it does not exceed that age the life habit they will be to be injured with the excess of Venery - & the Woman from Child bearing - however the venereal appetite may be abused by immoral purposes yet to the human species it was given as a great blessing - much disputes concerning the propriety of matrimony has been held from the passage in wh our Saviour is asked by one of the Publicans "is it good to marry" - he answers - "there are Eunuchs who are Eunuchs from their "Mothers womb & there are E. who have been made "so by Man & moreover there be E. who have made "themselves so for the Kingdom of heaven Sake - "if any of you now can hear these things let "him hear them &c. - This has been fol- sely construed in an argument in favor of celibacy - I say falsely for it admits of a directly opposite construction - It appears if our Saviour being ~~asked~~ appealed to on a Subject of so delicate a Nature & wh concerned a univerral principle of humanity - the venereal appetite as if he wondered at the folly of such a

question

question — The universality of the venereal appetite proves it to be the intention of our Creator that it should be engaged and if it were not — the destruction of the human race must be the consequence which he can never have intended — so that what has been supposed an argument in favor of Celibacy is in my opinion a strong one in opposition to it. — It is impossible for the Human Subject to live without gratifying this appetite (* "here is "a contradiction with what Dr. Rush observed when speaking "of Dr. Browns opinion of the cause of Venery (p. 6.) It appears to prevail in every state or condition of the System in a greater or less degree — the Convalescent from fevers the maniac the Hypochondriac proofs it — we see it is not entirely extinguished in a palsy Hysteria. apoplexy &c &c — it appears to stimulate strongly the convalescent from malignant fevers & the Idiot — during the prevalence of the Yellow in this City in the year 1793 the convalescents from that disease at Bush hill indulged in a most criminal gratification of their unnatural desire — Gibbon informs in his account of an Earthquake in the time of Justinian wh destroyd the City Lisbon

that

that numbers of Men were seen committing rapes on Women who were flying in the greatest terror from the Shocking Scene of depolation in the above case it must have been marked M^c ..... Mentions the case of an Idiot in whom the venereal desire were remarkably strong

Montaigne mentions a case of a man in whom the ~~venereal attitude~~ Genital organs were strongly visible whose venereal desires were very acute – The Idiot who lives near Poppy wick gates in Norfolk has a great inclination to be married – Even old age does not in every case – The famous Thomas Parr was convicted of adultery at 120 years of age – and our daily papers frequently informing of Persons above 70 who do homage to this universal passion Author. Disease. Religion. Disease or Deformity are able to destroy it – Is it a wise provision of heaven to prevent the destruction of the human race? – What human being without these clothes would form a connection with a person of whom he knew very little and risque his happiness for life? – or who were it not for this Passion would tolerate the exp

ence

expence & difficulty of raising a numerous family of Children? If nature never intended man to spend his life in the pursuit of these small gratifications or she would have given him more enjoyment than the brutes wh is not the case - Man is confined to the enjoyment of one Woman and rarely - for he would dobitate & perhaps destroy himself rather he like brutes allowed - the privalege of every woman he not his system is unable to bear it - many instances have arisen of Death from this cause - one of the most celebrated of the Italian Painters lost his life by the enjoyment of Six women in rotation - The desire for the propagation of the Species is not confined to man - the Horse, the Bull - the Ram - the Boar all are similly alive to it - in some it approaches almost to madness - in the Amphibious Animals the Pleasures are still greater - Turtles continue their embraces for 3 or 4 days & Toads remain in the same Situation for 8 or 9 days - Spalanzani informs us that the pleasures of Frogs from this same Sense are so exquisite that they do not mind any bodily Pain while they enjoy this gratification - he amputated their legs & could not seperate them & many of them

Pollisany was intended for a punishment & Gods allisy Men to mantain the Species -

Man would only relinquish his female with his life - had man been formed & intended for this gratification only - he had surely been more capable of receiving Pleasure than Brutes - but he was formed for nobler purposes and yet venereal desire was given him merely to prevent his neglecting that duty wh he owed to posterity -

I proceed next to <u>generation</u> it is with diffidence that I enter on this subject - "Clouds & darkness" have long dwelled upon it -

After microscopes had been used to investigate different parts of the Animal Oeconomy, Animalculae were perceived floating in the Semen masculinum - A theory was immediately formed in wh the Uterus was supposed to serve the purpose merely of a Matrix to the Embryo wh was supposed to exist in the Male Semen - It was reserved for Spallanzani to dispelate the darkness that hung over generation from experiments made on bitches and amphibious animals he has rendered it probable if not certain that the Embryo is contained not in the male Seed but the Female Ovaria - & that the male Seed acts only as a stimulus exciting the Embryo contained in one of the Female eggs into action - he awakens from his long sleep by the stimulus

you mention that Mr. Hunter has asserted that the Semen is highly stimulant & pungent.

Thus you see that my Idea of animal life are further illustrated are further illustrated Stimulus is necessary not only as I before have said for the Support of life but for the production of living Animal! (* Death is our natural State we are forced into existance by Stimulus & kept existing by Stimulus When the Stimuli is abstracted Death insues *)

The Manner in wch the process of Generation is performed is as follows – The Male Seed is ejected in the act of Coition & received into the cavity of the uterus – How is it brought in contact with the Ovum? I answer by absorption it has been commonly supposed that the Fimbriae ejected in Coition one of the ova & conveyed it into the Uterus where it came in contact with the male Seed – This opinion I do not adopt 1st because Ovaria is in Ovario & Fallopian tubes 2nd because the uterus remains suspended & closed during conception – 3d – because impregnation has been known to take place in cases where the Semen was not conveyed to the Uterus – as by a penis not a quarter of the ordinary length – where it has only been introduced into the entrance of the Vagina – While I was Studdying in Edinburgh a Student of

a Student of Medicine was obliged to marry a Girl who Swore he had got her with Child - He appeared in the most Solemn Manner that he had not even violated the Edge of her virginity - Still without the rupture of the Hymen impregnation took place - Dr Lowder claimed a woman whose Hymen was not Ruptured and Dr Johnson relates Several Similar cases - 4th - it has been Supposed that the ovaria are Seperated by the energy of the Venereal orgasm But there are instances where this will not explain it as in Rates - I have Said from absorption - in favor of this opinion I will relate an experiment of Spallanzi he dissolved 3 grains of the Semen of a Toad in a Pint of water - one drop of this Liquor impregnated a female when introduced to the vagina Now if So Small a quantity as was contained in one drop of this water is Sufficient for impregnation can we have any difficulty in Supposing the Semen to be absorbed enter the circulation & a portion of it come in contact with the ovum? This opinion was Dr Hosack & I heard of none more rational or probable — —

The

The Reason why the Semen produces no ill effects on the System by its absorption is that it is a Specific Stimulus capable only of producing this one action - just as vaccine matter will not operate on the Stomach - and the whole mass of Blood would not dilute the quantity of Semen emitted in copulation more than the part of water did the Sperm of the Frog - nemo hoc facit here than in poisons but why need I mention poisons? a single grain of common Sublimate has been known to produce Salivation - From its being a Specific Stimulus no inconvenience results from unfruitful connections

If this Theory be unsatisfactory I will mention another Mr. J. Hunters - all Secreting passages have a peculiar peristaltic Motion as is evident in the Urethra in Gonorrhoea, in the Trachea - in the bowels - Stomach & there is Sometimes a reversion of this peristaltic motion as is Seen in Cardalgia - - - - - - - or Water Brash - may not the Fallopian Tube & Vagina in like manner have a reversion of ye Peristaltic motion and are of the ova be thus conveyd by the motion of the Fallopian Tube to the Uterus? - This will account for impregnation

Impregnation in cases of Short penis & unruptured Hymen — But as it is entirely from analogy it may be objected to as Hypothetical & it certainly is more so than Harveys — Several circumstances influence a belief of this Theory as 1st the activity of the male Seed — the absorbing powers of the Vagina — Excitability of the ovaria — Since or upon or after Menstruation wh increases the excitability women are more easily impregnated — also after long absence from Food — after a Fit of Sickness a Journey a voyage &c &c to a foreign country — that has a remarkable influence on the generative powers of animals

Revd Mc Calley mentions that Sheep when brought from any Neighboring Island to St Kilda wh had left off copulating become pregnant soon after their arrival there —

The Nausea wh is induced in conception is entirely owing to the Sympathy of the System with the ovaria & Fallopian Tubes — the ovarian being at the moment placed in the Fallopian Tube and lodged in the Uterus — by its motion we see a hundred similar effects from mechanical

Mechanical & Chemical Stimuli - I shall mente -
on two cases of the kind somewhat remarkable -
a lady in this City always experiences before the
commencement of her breeding sickness a coldness
in one of her legs. Succeeded by a glowing heat in
ye part - Dr Marle a Gent of Respectability in New-
castle mentions a case of a woman who always
knows the time she has conceived, by a great propen-
or inclination to steal every thing wh she comes
across - The Final cause of this Nausea accor-
ding to Mr Hunter is to guard the System against
inflamatory complaints - It is not a universal oc-
currence I have known two cases of pregnancy in
this City in wh there was no sickness at all - & in
some it is so violent as to induce great disease - I
have known some cases where the patients were un-
able to sit up for 3 or 4 months - How long is
the ovum before it passes to the Uterus? I answer
the whole business is carried on in the ovaria - It
may be compared to a hot bed where the plant
first acquires life & vigor - The Uterus may be
considered as a large Green house where it is
nourished & acquires strength to resist the action

I have seen pregnancy a Disease (then we are not certain) in Dover
Chelsea Asylum by Dr Dunn mention a case of this kind and the Cause of Disease
Dr Dunn Oxford Lad is this City who knows the Cause of Disease
or are sick after sickness - a Disease for Study

action of the Season & air — Hitherto I have spoken of the Semen as a Secreted Liquor of a peculiar kind - it is formed not only from the fluids but the Solids of the body - hence it is not formed till the body has acquired its full growth — till puberty - The absorption of the Liquor was formerly supposed the cause of the alteration of the System at that age but it appears to be an effect that is the Secretion of the Semen is not performed till the body has this vigor - it is derived not only from the body but the mind! every part of the body blubs its proportion to this Secretion - & the mind influences it - the formation of the ova is the cause of the change in females at the same period — I say every part of the body blubs its proportion - this attains also in Women - hence children resemble their parents — This resemblance has been explained upon the Supposition that the Early looking at the parents, had that influence but it appears in cases where this cause could have ~~operated~~ — but we have analogies to favor an ~~Supposition that~~ the above is the true cause that effects partake of the Nature of their cous

course — Thus a Stroke on the face made by the hand
Shews the marks of every finger — we See it also in
Vegetables the influence light has on the Color —
again in Chemistry we have instances
again in Chemistry we have instances of the re-
sults produced partaking of the nature of their com-
ponent parts — Dr. Chamos has Supposed the
reason why Bastards commonly possess such
Great minds wh is a fact to be the Vigor of
the minds of their parents wh is produced by
the Stratagems made use of to accomplish their
purpose — and the care with wh it is necessary
for the Mother afterwards to conceal her Situation
& Prostitution — We Shall proceed agreea-
ble to the order laid down in our Syllabus to con-
sider the formation of the Foetus in utero or
Conception but this you will hear to grea-
ter advantage from the anatomical Chair —
Parturition comes next before us — The usual
period of pregnancy is Nine months — Tho Some
latitude is here allowed — Some instances have
occurred of Women being with Child 13
months — & 5 months is the Shortest
time

time ever known of living children being expelled from the Uterus — 5 & 13 Months have been mentioned as extremes — Morrey relates a case of a child living who was born but 6 months after pregnancy — It will be of importance to you to know this fact as the Peace of Families may in some cons be preserved by a knowledge of it and the order of Society — The History of extra Uterine Factures & Super Fœtation belong to Pathology.

At the close of the period of gestation the Fœtus makes efforts to free it Self from confinement — or change in the Position of the Childs head — this probably first produces the throes of the mother wh are extremely painfull — Death is sometimes induced merely from this pain — Pain has been supposed necessary to child birth! This I do not believe to be the case — It is true it was this Curse pronounced on the Female Sex for the Transgression of one of our first parents — but I think it may be abrogated for the Same being pronounced as the punishment of Man that he

shall

should earn his bread with the sweat of his brow, yet how many are there who live without working? by the ingenuity of Man this curse has been obviated & I think it probable the other may too — In some parts of Africa we are told the women bring forth children without pain and Mr. Bricstone informs us that the women in Sicily have but very little pain in parturition — the Turkish Women we are told mitigate their pain by drinking Sweet oil for 2 or 3 months of their Pregnancy — it acts by inducing debility of the Alimentary canal — I have uniformly observed that Weakly women & ~~Leptomenous~~ delicate constitutions have easy labors — & I have frequently observed bleeding to mitigate very much the pains of Labor — In all cases of every birth there is direct or indirect debility — this is usually Chronic — but I conclude that if debility of a more temporary nature could be induced it would answer the same purpose either indirect debility or debility from abstraction of Stimuli from the effects of Copious bloodletting ordered by Dr. Physick in a case of dislocated humerus at the Pennsylvania Hospital who was reduced

with

I am fond of the Pain of Labour as it relieves by the same Remedies to cut as or Pleurisy and are

with great ease to the operator & not little pain to the patient — I think it will be possible to alleviate in some measure to alleviate or at least to mitigate the pains of Labor — we are not unacquainted with the effects of bloodletting or a dose of opium of sufficient force to induce complete syncope for a short time. could this be done I think the labor would be easy — I am the more respond to this opinion from a fact that a case of Labor was void of pain in a fit of Epilepsy — a Woman subject to epileptic fits was pregnant and delivered of a child in one of her fits without pain — I am persuaded Gent that the time will come when the pain of childbearing will be as certainly & uniformly mitigated as then of a fit of the Cholic

The Marks wh are sometimes found on children bodies, how are they produced?

This effect has been attributed to the imagination of the parents but this has been proved not to be the case — Dr. McCauley of 3000 cases wh he had under his inspection none

none proceeded from this cause - In some the longing of the Mother was for claret the child had no Mark - where it was for Cheese the child was frequently marked with claret - but in no one case of near 3000 was the child marked by the imagination of the Mother - I can only explain it by Effusion upon the delicate Skin of the Foetus -

We should next in the order of our Syllabus speak of the different Stages of life - but we have already spoken of Pottery & the others will come in more properly when we come to speak of the diseases Peculiar to each life wh time & post-pone this consideration -

The next Subject is the analysis of the fluids and Solids of the body - of the fluids - the amylum of Some I have mentioned when treating of them the changes they undergo in diseases will be noticed in our Pathology -

With this Sum Gent I conclude my account of the functions of the human body in a healthy State & also of the mind - we have Seen Man in whom the ~~[illegible]~~ functions were carried on in a pleasant

pleasant easy regular exact manner — this is what constitutes health — or health may be defined. "that State of the System in wh the excitement & excitability are in an exact ratio to each other and both equally diffused through every part of the body & mind" this definition admits of considerable latitude it excludes strength altogether from health the most effeminate Citizen who cannot bear the rays of the Sun or a Northern blast may be equally healthy with the most Robust hardy working peasant who can stand all seasons & changes with out inconvenience —

If health consisted in the quantity of strength a man would always be more healthy than a child wh is not the case —

Is it possible for a Man to be always in good health? on this subject there have been 2 opinions — some have supposed it possible to exist forever in good health — Mr Price was formerly of this opinion but to his credit he has changed it — those who are in favor of this notion — derive it from the alchemists — The Immortality is to result from certain improvements in Physicks — But it is irreligious for "dust thou art and unto dust thou shalt return" we live by gone death is the natural State of

man

Man – Paracelsus, death nearly put a stop to his
way of thinking, he contrived an elixir called Elixir
Propriatatis, wh he supposed would preserve health
& make him immortal – what might be the
effect of bleeding repeated every now & then in preser-
ving health & long life – The Germans make a
practice of this in the Spring Season – notwithstand-
ing all that has been said in opposition to this, I
believe that we shall at a future time attain the
antediluvian age – May there not be a quantity
of latent excitement in the System wh we know
not of wh if used with oeconomy may lost us a thousand
years? and is there not something like a hint of this
in the Scriptures where one of the prophets says that man
shall be a boy at 100 years old, he must mean that
man's age should be such at a future time as will
bear the same proportion to 100 years that the
usual period of a persons life now does to 10 years
– The means of this antediluvian longevity will
be probably of 3 kinds Physical Moral and rational
– The changes of the earth in wh will be duly
ap the laws of fructification & of cause & effect
– The influence of Religion wh will prevent
many

many diseases wh are now common will condemn beyond this desirable effect —

We must now gentlemen take the last pleasant pleasant view of the body of man in leaving this Subject I feel as if I were going for the last time in a Splendid pallace destined to destruction by the hand of time or of War — for both the body & mind of man are exposed to a thousand dangers as if in a State of actual warfare — Disease & pain are the consequence of these dangers — We have viewed him erect and ruddy, his bones filled with marrow. his eyes sparkling with health his vessels bursting with blood — the Sinews and fascilles in perfect order and in unison with the faculties & operations of his mind — So explain the causes of the diseases to wh he is exposed will be the business of Pathology and this we shall commence at our next lecture — (here Dr. R. recapitulates his theory of animal life)

Lecture

Lecture 22nd

Pathology

Introduction

Gentlemen, Hitherto we have considered the Human body in a healthy State as divinely created man before the fall, but now we are to behold him in disease as divinely contemplated him after the fall in an imperfect or diseased State – Sickness & Death like moral Evil are the ~~con~~ consequences of the lapse of Primeval Innocence – As Soon as Man lost the image of his maker every animal in creation conspired to his distruction and annoyance – and numerous other causes cooperate to cut Short his life – their operations at first were feeble and Slow and many then were able to live for near a thousand years – after a long time they increased in force & human life was reduced to a much more limited period – The influence of the deluge has completed this limitation and reduced it to its present period – This Cause has had a Singular influence on the Atmosphere as its Temperature and quality the

- The changes induced on the Surface of the Earth as well as the various eruptions and engagements the Element Drink, may its very pleasures contrived to take part with the offended majesty of Heaven! This proves that life is opposed by a hen-Bond causes constantly tending to its distruction - That it is a forced State is no lip consonant to Reason & morality than to True Philosophy - That principle or quality we call life is in a continued strife between the causes above enumerated & Death - & the strife lasts in some cases for 30. 40 70. or an hundred years, and the temporary victory of the stimuli wh constitute the living State of Animals over the causes combining to extinguish it ——

In entering on our Pathology I feel as if I were entering into a deserted wilderness with out a guide to direct me — There has not been a complete System of Pathology written — Boerhaaves observations are various and imperfect they no means suited to the present improved State of Medicine - Muller has collected a few

few Pathological facts but formed no regular System from them — Gaubius has published a System of Pathology — it is too much filled with the humoral Pathology of his master to be of any use to medical Students — I shall therefore endeavor to pass through this wilderness, without a guide, without a compass I shall follow the indian marks the System which I shall teach is founded on principles of my own. the Proximate cause of disease

The causes of disease I have divided into Remote Predisposing — Exciting or Occasional & Proximate — or the disease it Self — they are all links of one chain. let me illustrate this — Cold is the remote cause of an inflammatory fever, debility brought on by the Sedative power of cold acts as the predisposing cause — Exposure to the heat of a Stove room the Vernal Sun or exercise the Exciting ~~the~~ occasional cause — the irregular or convulsive action of the Arterial System is the Proximate cause or the disease it Self — I will repeat it again, the Cold is the remote cause — the debility it induces the Predisposing cause

cause -- The action of a worm Roon or verm-al Sun the exciting or occasional cause while the irregular ~~or convulsive~~ action induced by them in the blood vessels is the proximate cause or disease of Self —

The Pain heat & thirst wh are evident in Fevers are only the Signs or Symptoms of the disease or Proximate cause — These Symptoms of disease I Shall not mention in my Pathology, but defer it till the practice of Physic ——

In treating the Subject according to the order laid down in our Syllabus I Shall proceed to the causes of diseases - but before this I Shall lay down a few general propositions ——

I All diseases depend on predisposing debility, those from wound & local accidents excepted — Even Contagion does not induce disease without its being preceded by debility then follows in quick Succession the exciting and Proximate cause — The predisposing debility is of two kinds direct & indirect - between

between these it will be proper to distinguish and for this purpose it is necessary to fix on a certain Point or an immaginary Scale at wh we suppose and health to consist — Let us call this 50. here the System is stationary the acted on — When Stimuli act on the excitability of the System wh have power to raise it to beyond 60. or when Stimulus is abstracted from the System to below 40 debility is induced — a range of 20 is thus allowed — in the former case indirect debility and in the latter direct is induced — debility has been called a disease but this is an error it only predisposes to disease — These two debilities when brought on are so exactly alike as only to be distinguished from their causes — When debility goes for beyond 60 or below 40. it verges to disease, but the System is seldom long in this condition exciting causes occur and disease is induced — the sudden diminution of excitement in debility is followed by a great increase of excitability wh seldom fails to create disease — the increase of excitability rendering the body more liable to be acted on by Stimuli — or as Mr. John Hunter has happily called

them

them irritants - these increase the action and tone of the System without making any alteration in the mode of action - the more suddenly the excitement of the System is abstracted the greater will be the increase of excitability —

There appears in some cases to be something like a conversion of one into the other owing to the suddenness by wh one is succeeded by the other - where the debility either direct or in direct exists a great while it exhausts the excitability & renders a greater Stimuli necessary to excite the System - in some instances it seems as I have before hinted a latent quantity of excitability - differs materially in different stages of life - Death consists in the destruction or annihilation of both excitement & excitability - Death is in fact nothing more than a loss of the power to perform that action wh belongs to life - no more happens here than happens to a bell or a violin deprived of their Power of emitting Sound or Musical tones — I have said that debility is the predisposing cause of disease - I do not rest here wholly on Physical but Moral evil also

Death

also — Evil I consider to be of 2 kinds Physical and Moral — the former exists in the Human body and on the globe — the latter Moral evil has its seat in the mind of Man — That evil arises from debility I infer 1st from the derangement wh takes place 1st in irregular Motion — 2nd with regard to place there is an error loci or misplacement of the fitness of things and their relation to each other — 3d in Solution of Continuity — Evil in the first instance would appear to be a positive appearance. but it is merely the positive effect of a negative cause — in the human body Disease is certainly the positive effect of a negative cause — debility is the cause of every disease and is an effect of Error loci or irregular motion — Evil then depends on derangement & is nothing introduced into the system — but it may be asked here are not the yellow Fever Small Pox plague &c real or positive Evils? — No they are not they induce disease only from error loci. The Morbidus Matter is not offensive to brutes Even the Stomach of the human Subject it is also inoffensive — they act by an induce mixture

of

of things not related — a piece of bread in the windpipe will produce a most violent action and even death — yet who from that circumstance will cease to use bread? — or who would suppose it to be of a morbid nature? It was intended for the nourishment of man the evil arises from its misplacement — and so does that of the Small Pox — Perhaps the bellis was designed to answer some useful purpose in creation — but are not the Contagion of Plague & yellow fever real & positive evils? I answer no, they are not — they are only evils when excess or when misplaced — The Miasmata of the yellow fever affords the most cordial nourishment to Vegetables and to the Human Subject they are only evils when in excess, a Small degree of these Miasmata — I speak it from experience have a very cordial effect on the System when applied by a low diet — could we bottle up these Miasmata they might properly appear as an usefull article of our materia medica — they supply in many cases the want of aliment — be not surprised at this assertion — Opium is a much more

deadly

deadly Poison than the Miasmata, it proves almost certain death when taken in a dose of sufficient force - but there are a thousand escapes from the Poison of yellow fever. yet who suppose Opium an evil? on the contrary Dr. Mead has happily called it the Magnum Dei donum - The same may be said of Poisons of the animal Mineral or Vegitable Kingdom - they are Medicinal in small doses - What is poison to man is food to animals they produce their ill effects by error loci - Smells produce in some people cheerfullness and gentleness in others - yet who supposes Odor to be evils? they are so only by error loci - but is not pain a positive evil? no it is only an excess of those stimuli wh produces pleasure when moderate - are not certain unpleasant odors discordant and deformity ~~positive~~ faults? no they are not the dead bodies of our friends afford the highest repast to birds and some animals devour with delight the putrifying bodies of our friends - but are not the evils of the globe positive? such for instance as barren soil. Wet and dry seasons Marmattes

Tornadoes & Sirocco winds and the like? I answer they are not – They are the effects of error loci – There is no positive evil in barren Soil – It is an undue mixture of the Species of Earth – Clay & Sand – yet both of them are useful they are made fruitful by altering the proportions of the two earths – are not earthquakes what annoy us positive Evils? I answer no – they are only so when misplaced – Thus error loci causes these bad effects – they eat and bite but they are formed to eat up Intestines loathsome to us – The Spider wh is an dwelling annoys and distresses us is an evil only from Error Loci – in our Stable it is useful in feeding on the gnats and other vermin that distress our horses – But are not these positive evils? no they are probably designed for some useful purpose by the Creator and are evils by being misplaced –

Let us next examine into Moral Evil Seated in the mind – this like Physical Evil consists in debility it is of a negative nature it consists in the absence of the Strength or

power

Power of the will - may be rather considered as disorder, the effect of disease - in contemplating this subject I have been led to compare the mind to a magnificent fabric filled with furniture useful & ornimental - Supported by a Pillar (the will) the whole fabric falls to the ground in disorder - The harpsichord whose wont to enchant us by its tones in the parlour - now emits discordant harsh sounds either by its being thrown on its side or its chords being broken - The China & glass utensils once of so much use, now lacerate our fingers by the acuteness of their angles - - - - - - - - - - - - - - This subject does not arise from any new principle introduced into the ~~system~~ mind for example the vice of Self love is no positive evil it is only the reversion of the love of Deity, that principle wh connects man with his creator inverted an over Selves - Pride is merely a principle of dignity thrust from the understanding & lodged in the Imagination - Envy is nothing but a dislocated Emulation - the love of fame is merely a wrong direction of the desire after immortal life & happiness - - Ambition - - - - - ~~Malice~~ Malice

Malice aversion translated from things to persons — every vice in fact is a Bone out of Joint, or Luxated it is merely disorder — is an evil in the Same way that dislocation of the Solids of the body ~~are~~ give pain. do those of the mind — "The Scriptures Suppose the Idea of misery being the consequence of the wrong direction of the mind comparing the ways of Sin to a crooked path —

This view of moral evil is not original my own I find the Same opinion held by Mr. Edwards of N. England — I am more pleased with this as it vindicates the Supreme Being from every charge of creating Evil — when man fell then was an abstraction of divine power from his will — We may conclude this Subject therefore with the ~~last~~ words of the Poet —

"All discord Harmony not understood
"All partial evil universal good" — (Pope)

Thus Moral evil depends on want of Strength in the will the pillar of the mind —

Just as Physical evil depends on want of Strength ~~of~~ debility of the body

innumerable

innumerable are the effects of Bath - Tones of ye mind cant be numbered in all its variety of forms & combinations

II We proceed to my next proposition ye 1st is that debility is the universal predisposing cause of disease - 2nd that in debility there is an increase of excitability - or an increased disposition to be acted on by Stimuli - 3dly that debility invites morbid action, or a diseased Species of Excitement - this is not a new opinion and Dr Hoffman hints at it when he says "Atonia gignit Spasmos" this is nearly what he meant by it - the Electric rod does not more certainly invite the Lightning than debility does morbid action - in this irregular or wrong action I have said disease consists - excitement may be excessive yet if it be regular no disease exists as in Running dancing & violent exercise the blood vessels and Muscles are here highly excited, yet excitement is of a regular kind and of course healthy - here I differ from Dr Brown who makes disease to consist in debility

Why

4thly Diseases are always partial - I know of no disease wh at the same time effects every part of the System - in Fever it is confined to the blood Vessels generally - In Mania to the blood Vessels of the Brain particularly - In Dysentary to the Bowels &c &c then We see that every disease consists of unequal excitement and the whole art of healing consists in equalizeing the excitement in wh Health consists -

Dr Willis has lately supposed this to be the Animal Spirits wh was diffused through the System unequally - The first law of Electricity wou here apply - Some parts may be considered in a state of plus - others of minus - the Shock wh comes on by the discharge of the Electric fluid into the minus parts - e.g. the bowels &c. as lightning on Vegitables - 5thly the irregular excitement shews it self in force & Velocity of Motion - this is sometimes excessive - as in Tetanus the force of action is great - Sometimes in Pain as I before said is merely one Simptom of wrong action and not universal - This Simptom is not universal Several diseases are not accompanied by it

by it - as Epilepsy & Hectic Fever. It is no more necessary to disease than thirst & heat in fever — In diseases of the bowels there is more pain than in diseases of the Cepils simply as they possess little sensibility & much contractibility —

III I have now arrived at my last proposition - in a former Publication I have asserted there is but one fever in the world - this will startle some of you - but with full confidence in the principles I teach, I now add that there is but one Disease in the world and that consists in Irregular excitement or Morbid & Wrong Action Whether this be seated in the blood vessels nerves. Alimentary Canal or Lymphatics still I maintain that there is but the one State of disease - from this Veew of the oneness of disease you will see gentlemen that much trouble will be saved in the Study of Medacine - all diseases have one proximate cause - wrong or convulsive action - in fever this is seated in the blood vessels - but it has been said are not obstructions disease? no. they are the effects of disease but by reacting they ~~contin~~ prove a cause of disease - I have

I have called them disorders or consequences of disease — Thus the water effused in Hydrocephalus is not the cause of the disease it is the effect of the diseased action in the brain — In the like manner the hardness in the liver & succeeds Hepatitis is not the cause but the effect of the inflamation in that Viscus — where these disorders produce death it is by a reaction on the System — there are 3 links of one Chain 1st the predisposing debility 2nd the morbid action or irregular excitement & 3d disorder & the effect of this action —

In ..... are comprised all that is useful in the writings of the nosologists — Sauvages, Sagar, Boerhaave, Linnaeus, Cullen, who have divided Diseases into classes. Genera — Orders & Species — It is painfull to me to suffer from those great Men — but I prefer new truths to old errors — my objections to Nosology are 1st it is erroneous 2nd — it is impracticable — & 3d. it is injurious to the practice of Physic — 1st it is erroneous. diseases cannot be divided so accurately into Genera & Species as their Simptoms

change

change almost constantly into each other. — error must arise from this Source — thus convul-sions & Madness often alternate — Plants and animals may be classed into Genera & Species for they never change into each other — Who ever heard of an ox changing into a Lion or an oak tree to a thorn bush? but the Symptoms of disease con-stantly vary — 2-ly- I say it is impracticable to class diseases as we do plants — They change their Seats so frequently & all their appearances that we might as well pretend to class into Genera orders & Species a Storm accordingly as it accompanied by thun-der or Lightning by rain or without with or without wind with hail or Snow or without them — as to class diseases under different names as they appear in different parts of the body — Gastritis — Enteritis Pneumitis Nephritis — Nefalitis ... alternate

2d — the predisposing cause is uniformly debility 3d the debility may be either direct or indirect — 4th the exciting cause must be an irritant or Stimulus — the Symptoms of fever may vary according to Several circumstances of the exciting cause — whether this be eating or drinking heat or cold yet the disease

disease remains the same - again the same exciting cause will produce different Symptoms as the System is predisposed to any particular Symptoms - [a Glass or 2 of wine - Porter - fright or any exciting cause tis a mistaken idea of diseases from Seats causes are ingenious but wrong] 3d it is injurious to the practice of Physic for in the first place all diseases commence the same way by predisposing debility - if we wait till the Symptoms appear we lose our chance of preventing the disease which may be easily done by a gentle Stimulus - in its forming State - the languid debility wh a person feels before he is attacked by Yellow fever & Gaol fever other diseases is readily removed by washing the feet in warm water - a gentle Sweat or the like wh equalizes the unequal excitement - thus by carefully attending to the predisposing causes we may strangle as it were the disease in its forming State 2d

our remedies for the prevention of disease, after the premonitory Symptoms, should vary in force according to the importance of the ~~[illegible]~~ part attacked

4th Seat of disease - thus we know that more danger is ~~to be~~ apprehended from diseases of the Brain then of other parts also of the Trachea wh is more dangerous in bronchitis trachealis then the Pneumonia [more copious in deglutition and Stimuli when vital parts are affected - - - - - - - lastly nosology has caused disputes among physicians] this System will not render the practice of physic less troublesome on the contrary it will increase the necessity for frequent visits among nosologists who prescribe from the name of a disease visits need not be so frequent as among those who practice from the State of the System

Disease appear in several forms viz 1st in convulsive action as in Epilepsy 2nd In Spasm as in asthma - Spasm is either tonic or ~~chronic~~ Clonic - the first is constant as in tetanus the 2nd is alternate - 3d In great heat either external or internal - as the Skin mouth Stomach Breast &c - 4th In great Itching on the Skin - either under the arms - In the Pudenda - Anus &c - 5th ly In a kind of Shock wh is Sudden & Severe and goes

goes off in a few minutes as in Area
6th in what I have called Suffocated excitement
where all reaction & Sometimes Sensation ceases
This as I shall here after mention is the worst
form in wh disease can appear - in these
cases the abstraction of blood produces a quick-
ness in the pulse - it occurs in fevers of
the most malignant type - This Suffocated
excitement as I have called it appears to
have its Seat in the blood vessels - each of
the above forms of Morbid action appears in
every part of the System occasionally tho'
they each appear to have peculiar Seats wh they
most commonly occupy - This the Fishing Dr
I mentioned as the 4th form of Morbid excitement
most generally occurs in the pudenda & Arises in
the latter Dr - - has observed it to be a Symp-
tom of the Gout - Sho[illegible] usually occurs in
the Muscles & blood Vessels - this is as certain that
pain varies according as it is Seated - thus it is
acute in membranous parts - Dull & heavy in
Parenchymatous parts lancinating in Muscles - gra-
ueing & boring in the bones - - now

were we know that pain is an unit in all
their varieties it is absurd therefore for nosologists
to say each of the forms in wh morbid action appears
constitutes a different disease - this as much
a unit as pain - I exclude coldness from ye
form of diseased action - it depends on the
abstraction of excitement - it may be removed
by bleeding in acute fevers - Inflamation I
consider as an effect of morbid action it is a 2nd
inferior degree of Morbid Excitement - In it there
is Error loci, this always occurs in inflamation
tho' it is not the cause of it - In violent mor-
bid action inflamation does not take place -
Morgagni mentions several cases of Cholic of Death
where there was no inflamation this is the 6th
form of Morbid action - It occurs too in Hydro-
phobia - I have been called a brunonian
but this is a false assertion - Dr Brown
supposes all diseases to consist of debility -
I deny debility to be a disease at all - it is
merely as I have often said the spasms passing course
of disease - Browns division of disease
is into Sthenic & to asthenic - I deny

I deny that any diseases are asthenic
Asthenia is merely predisposition — Dr Brown
places disease in diffusion of excitement &
excitability over the System — in this I sup-
pose good health to consist — My practice
differs still more from Dr Brown he
endeavors in all cases to overcome
debility — I to equalize Excitement & exci-
tability and in some cases to diffuse excitem-
ent and prevent its being concentrated in
any part —

I think I have clearly shown the inefficac-
y & ill effects of Nosology — From this Gent
you see you will lose more than you will
gain in your attendance on these lectures if
you adopt the principles contained in them —
you will lay aside a load of unmeaning and
useless names of diseases and acquire in place
of them a few simple principles a knowledge
of wh you will acquire in a few weeks
and remember your whole lives with ease
I have compared Nosology to a Shamans cabi-
net containing of one hundred apartments each
of wh is opened by a seperate Key — The

the principles wh I teach I have compared to a cabinet equally spacious and commodious containing of equal number of apartments all of wh are opened by a single Key

Why Thirty Gent. will relieve you of the noise & weight of the hundred Keys —

Lecture 23d

I have only to add to the proximate cause of disease that is appears 1st in the blood vessels — 2nd in the nerves — 3d in the Muscles 4th in the Lymphatics 5th in the bowels — but it is still a morbid, still morbid and irregular action appearing in one of the 6 forms wh I mentioned yesterday — having as I hope established in my last lecture that debility is universally the predisposing cause of disease — that the proximate cause is morbid excitement I proceed next to enumerate the remote causes of disease — they all act either by adding to or extracting from the excitement of the System inducing of course direct or indirect debility — this is an important part of our Pathology — without a knowledge of the remote causes of Disease we should be much at a loss in many cases, both in the prevention & cure of diseases

disease. Thus we find it difficult to cure a person from disease unless we remove him from the influence of the remote cause. If the miasmata of the yellow fever in a City has been the remote cause removal from the City will infalibly prevent & much aport the cure of the disease. I shall commence the Subject of the remote cause of disease by taking notice of certain corrupt practices of nurses in the treatment of children wh are of a debilitating nature. The Poet appears to have known the early predisposition we acquire to diseases when he says

"A man perhaps the moment of his breath
"Receives the Lurking principles of Death
"The young disease that must subdue at length
"Grows with his growth & strengthens with his strength

may they are predisposed to diseases, even before they come into the world. From the Passions - amusements - hard labor - aliments - drinks . . . &c of its mother. 2ndly - children often receive injuries wh ~~often~~ predispose them to diseases in parturition from accidents or awkwardness of midwives. 3dly The bad practice of washing new born infants with ardent Spirits wine &c

the — This custom is very prevalent but you sho-
uld always bear your testimony against it — it causes
indirect debility — wine or even Soap & water are too
Stimulating — indeed there is little occasion for washing
the infant even in pure water — The Stimulus of
the air is Sufficient to induce uneasiness in the che-
ld but when brandy is used the pain is violent — but
a 4th is the food of the mother either by excess in
quantity or unwholsomness of quality — by the too
great use of acrid Substances Spices Strong drinks
and the like they all act by inducing indirect debil
ity — 5thly dress of children is another remote caus
e of disease — tight Caps — tight Swadling Clothes &
in more advanced life Stays & many other tight
articles of dress act as remote causes of disease —
6thly food of the mother or nurse if the Child Sucks
her has an influence on the health of the Child —
the diet of there has a Stronger influence on
the Milk & of course on the health of the Child
children have had Cholic from the nurse using
unwholsome food & I once knew an instance of
Death induced in the Child by the nurse using
a Pint of Rum —

and aliments.

aliments frequently affects the nerves of Children
7thly the use of ardent Spirits allay & mitigate
certain pains with wh children are often affected
often act as remote causes of disease in them
this a bad practice — 8thly the premature appli-
cation of Children to Studdy — especially the applica
tion of Childrens minds to abstruse difficult
Subjects — this is absurd in parents but Schools
are attended with other inconveniences — a
close confined room — The Tyranny of a School
Master — this last influences the mental powers
of Children as well as injures health — I have
been called to many children brought home sick
from a close School room and mischiefs has
often attended despotic School masters —
9thly the amusements of children expose them
not only to accidents but lays the foundation
of future diseases as running Jumping hold-
ing them up by the head and arms &c &c — instan-
ces have arisen of Hydrocephalus internus from this
Source as also from falls — contusions &c &c I knew
an instance of a passionate mother who Struck a
Child on the Head in consequence of wh a

Hydrocephalus

Hydrocephalus was induced wh. terminated in Death -
Let us next attend to the influences of the atmosph-eric air as ~~the~~ remote cause of Diseases - and 1st of its Sensible qualities - these are heat - Cold - moisture & Dryness 2d. but the air induces disease from other causes beside these - It has certain impregnations of Miasmata either Marsh or Human - 2d - it is alterd and rendered unwholsom by combustion & the Respiration of animals - certain Manufactories emit effluvia wh renders the air unwholsom - also the perspiration of plants - 3d.ly from certain winds as the Samielle Sirocca &c - and lastly from an over proportion of pure air in it Mr Bruce - - - - - - - - -

- - - - - - -

1st Of the Sensible qualities of the Air as remote causes of Disease ——

The Human body is formed so as to be able to bear without much inconvenience to its functions a considerable variation in point of Temperature in the Surrounding atmosphere - but the Sensations ex-cited are most agreeable when this Temperature is from 62° to 75° of Fahrenheit - tho' this varies at different periods of life

in

increase becoming necessary in old age but till about the 45 year this temperature is pleasant heat is a universal Stimulus it acts on all animals — Different animals require different degrees of heat this I think the temperature of 32° or ~~perhaps~~ even lower is to some animals a Stimulating — as perhaps 75° to man — Heat and cold are relative terms the extremities of both are unknown — when it is considerably beyond the point of 75° it shews its effects on the arterial System — it induces a Languor and debility accompanied with an increase of excitability or increased disposition to be acted on by Stimuli — It never acts as a cause of fever in this way when it is chronic or has been continued — the West Indians being continually exposed to the heat of a vertical Sun feel not this Languor & inconvenience — 2nd heat acts on the brain when accompanied by direct rays of the Sun — it induces what is termed insolation sometimes it brings on Lymphe & even Death according to Dr Gindle Stone — it sometimes acts in a lip immediately — shewing it self in Spasmodic Discases — Inflamations Stupefy

cold —

bad Sweats - convulsions & Death - 3d Heat acts on the Nerves inducing convulsions Syncope Hysteria &c. hence these are very common in hot weather and warm Climates - Heat dulls the Sense of touch wakefulness is often the effect of heat - 4th the heat acts on the Muscular fibres inducing Languor & weakness - a disposition to involuntary motions - tetanus and indisposition to perform the Voluntary ones - hence is infered the necessity of Slavery in hot countries -

5th Why heat acts on the Stomach & alimentary canal inducing in the former an excess of appetite but if continued loss of appetite - in the latter it disposes to Cholera Morbus Dysentary - The influence of heat on the appetite is seen in Europeans who visit the East Indies. They have a great increase of appetite this they indulge & pay for their temerity by suffering some of the Diseases of that Climate. 6th Wh debility thus produced predisposes them -

6th Why heat acts on the Skin by producing a profuse discharge of Sweat - this is of a Salim taste & Smell - a greater degree of heat induces Dryness of the Skin - this occurs sometimes in natives - They never give out as the phrase is till they can

cause to Sweat — It also induces Eruptions on the Skin — prickly heat it is termed — but this I think has some other cause than heat of this more hereafter — also Prickly heat is brought on by exposure to the Sun more of this here after — Boils are some time induced by heat — a discharge of the white color of the Skin is an other consequence of heat and a browner color is acquired as in Indians — 7th The Heat invigorates the Venereal appetite — hence the early Marriages & fruitfulness of the East Indian women — Some have supposed that children were longer lived who were born in winter — Boerhaave was of this opinion — but it is perhaps owing to the greater number of births in this Season (tho a Man midwife of extensive practice in this City informed me that he delivered more women in Cold than in warm weather — 8th Heat acts on the Blood disposing it to Putrefaction this is prevented according to Dr Mc Cling by the ~~[illegible]~~ Bile — Bilous diseases are more common in warm weather — because Bran its acrimony and redundancy it causes diseases of that Type — but

but this I attribute to the Marsh effluvia — hence bilious fevers are most prevalent in hot countries — 9thly heat acts on the Eyes hence Opthalmia Gutta Serena cataract &c occurs most frequently ~~occurs~~ in warm climates — During ye Year 1793 opthalmia was very ~~frequent~~ prevalent in this City from the heat and dryness of the Season 10thly — heat acts on the mind inducing indirect debility in the faculties with perhaps the exception of ye imagination — Memory & understanding are impaired by heat — The Memory it is said is weak in hot countries — The Imagination is said to be increased Naturalists tell us that the desire of imitation is greater in hot countries this I suppose to depend on the decay of the sense of taste — lastly heat is less unfriendly to old people — than cold — hence the ancient Romans in their old age removed to Naples a more warm climate where they prolonged their lives without the inconvenience of old age — the modern portugese follow this example — Sir William Temple informs us that they migrate to Brazil as they advance in life and avoid many inconveniences of old age, from the superior heat of this climate — The Stimulus of the Sun in these ~~in these~~ cases counteracts the debility wh they wanted chiefly — Invigorates

& invigorates them very much — Heat when intense is suddenly fatal to old men —

Thus far we have considered the effects of heat acting on the body under ordinary circumstances but its action varies if the System has been previously exposed to cold or rather acts more certainly and with more force — inducing preternatural excitement — thus as heat of 77° wh occurred on the 17 of March 1791 was followed in the Citizens of Philadelphia with universal Languor & indisposition to Motion — had this heat occurred in July or August it would have been but pleasantly stimulating — Inflammatory fevers are caused by heat succeeding cold — a vulgar saying that "a green Chrystmas makes a fat church yard" is well founded — I have found the same effect of contrast of rendering changes of temperature more susceptible is induced by cold succeeding hot weather —

Bryduce informs us in travels that a second wind at Naples wh lowered the Mercury in the Thermometer from 112° to 80° the inhabitants ran into their houses & put on warm clothing — now this temperature in Summer if it had not been so sudden would have been very grateful — I mention

I mention this to shew how entirely relative heat & cold are — the sudden abstraction of heat by repelling perspiration predisposes to fevers — This is more especially the case if the weather be moist — uniformly dry & warm weather is healthy — changes increase much the ill effect of heat & cold — the warmest summers & the coldest winters if uniformly so & either uniformly wet or dry are the healthiest — The summer at Rome in 1756 was the warmest of any in the recollection of the inhabitants and it was the healthiest — all the hospitals were nearly empty — but in autumn their diseases appeared of a bilious type — thus we see diseases generated in one season & appearing in another — Heat long continued produces an insensibility to cold — hence the west Indians it is said require 2 or 3 years to cool them when they arrive in the United States they bear the cold better than the natives —

We are able to live in a degree of heat 20 or 30 or more degrees of heat above our own temperature with out inconvenience — The reason of this I hinted out when on the subject of animal heat — If such be the effects of heat

first, it may be asked why was man orginally placed in a warm climate. paradise? It was under the enervateing Sun of Egypt that the arts had their origin & flourished - and it is in hot climates that the greatest instances of Longevity have been observed - I answer when men Govern them Selves by reason & experience no other aid is necessary to attain Longevity -

The aborignes of this country from their Simple diet and drep are not Subject to diseases so fatal in Civilized Life - From Africa people grow old merely from this cause - for their Sun is fatal to the Mental Faculties of Europians whose mode of Life differs so materially from their - The Same observations obtain in Jamaica - their climate is fatal to Europians who resort there unlep they accommodate their manner of living to the Climate - In warm countries the Inhabitants live according to reason - Mr Townsend informs us that the Spaniards who live at Madrid by keeping close in the hour during the heat of the day and accommodating himself in drep and diet to the weather, think

drinking copiously of . . . . . feels no in-
conuenience from the excessive heat of ye Summer
— I conclude then that most diseases arising from
that are the effects of an error either in diet drink
or the exercise of the Mental Faculties - Some Error
Loci —

The effects of heat are different as it is
accompanied with moisture & dryness - To obvi-
ate the dryness of the air in Arabia - Travellers
who have to pass over the deserts of Nubia fill
a Sponge with water through wh they occasion-
ally breathe and are much refreshed - a Cup
of Water placed on a Stove in a close room obv-
iates the unpleasant effects of close Stove rooms
It would Seem as if a certain portion of Water
were necessary to respirable air — The effects of
heat when Joined to moisture Seldom are mor-
bid when the heat is less than that of the
body - Dr Winter . . . . . .

. . . . . .

Wintingham has observed that Summers unfor-
mly rainey and moderately warm are the most
healthy — a Temperate moist air is peculiarly

peculiarly adapted to give the face an handsome color — hence in Ireland & England where more rain falls in the course of a year than in any other part of Europe the Skin is remarkably rosy —

Cold is a negative quality — acts only by abstracting the Stimulus of heat — Cold has been supposed to act as a Stimulus — but this is an error wh has arisen from the increase of excitability wh arises in debility brought on by cold its action is uniformly Sedative — Its Sedative action is evident 1st from the debility induced by the action of cold on ye System — Laborers & Travellers in cold lose uship to this — 2ly I infer it from ~~the from~~ the Slowness weakness and even absence of pulse followed by weariness Sleepiness & death in persons exposed to it — The Pulse beats only 40 Strokes in a Minute in Greenlanders — this this must clearly be the effect of Sedative operation — 3d from the effects of the operation of Cold being Similar to that of bleeding & Purging ~~in diseases~~ and from its effects in dise-

diseases inducing direct debility – as in Mania
Small Pox &c in wh it reduces morbid action
Here it may be said that it acts as a Stimulus
in Fevers of hot weather by bracing the System
as a Tonic – but cold air in these cases acts
merely by abstracting the Stimulus of heat wh
induces indirect debility – This removing of indire-
ct debility has been mistaken for the effect of
Tonic action – To illustrate this let us suppose
the healthy point to be 75°. now supposing
the indirect debility produced by heat to be 95°.
the cold air by abstracting 20° reduces the Sys-
tem to a healthy point from its indirect de-
bility – I wish you just to take noti-
ce of this fact – it is of extensive application
in practice –

Let us now attend to the operations
of cold on different parts of yt. System –
On the arterial System Cold induces debility
& accumulates excitability – and increase of
the irritability of the muscular fibres pre-
disposing them to all kinds of fevers – It in-
duces also a painfull Sensation in the Breast

Breast as the academicians experienced when near the North pole — 2nd It induces an indisposition to motion in the organs of Voluntary motion — tho' the action of the involuntary Muscles are increased if any thing — Hence the Saying that man in the warm countries was designed to be the Slave of those in cold climates The wills of the former are not active & must do according to other peoples wills — 3d Cold diminishes the Sensibility of the nerves — It produces when intense a Dull pain in the head Sleep & Death — 4th Cold invigorates the appetite for food — Horses eat more in cold than in warm weather — 5th ly it ~~increases~~ weakens the venerial appetite — perhaps this may arise in Cold countries from the difficulty of procuring Subsistance for a numerous family of Children 6th Cold renders Sweating difficult and by stopping perspiration causes an increased flow of urine — Cold is supposed to be unfavorable to Vision — this may perhaps arise from the reflection of Solar Rays from the Snow wh all always attends cold winters — Cold is Sou

Cold is said to cause Scurvy - this disease depends partly on weak Solids & partly on Vitiated fluids - resulting in Some cases from want of exercise & perhaps the cold may influence but I rather Suppose that Some other causes combined with the cold in this case — There remains an other operation of cold on the body when carried beyond the degree inducing palenes - a red color of the Skin appears Similar nearly to that of Petechiæ in dead bodies - it is produced by the deadness of the Vessels which allow the blood to rush into them and gives the red color - In a Still greater degree it produces gangrene or a total dis organization of the part - Cold has a powerfull influence in reducing the Size not only of plants but of living animals The Samoid from this cause is lent & but light - Cold acts most powerfully among Sleep or in the Night - Soldiers. Sailors & the Laboring poor are well acquainted with this fact Nautical writers notice this Death from Cold after Shipwreck generally comes on in the Night — Since

hence most diseases come on in the Night —
Cold has a curious action on old ulcers at times making them worse when they are nearly healed —

These are the effects of cold in ordinary circumstances but by alternation with heat they are increased — It predisposes to bilious fevers when it succeeds the heat of august — The abstraction of 20 or 30° of heat destroys the Equilibrium of Excitement & excitability and thus invites morbid action — It induces direct debility just as the abstraction of Blood or any other stimulus — Cold acts as a Sedative in stopping the perspiration wh is an effect of indirect debility from heat — The yellow Fever is increased by cold only if it be intense enough to destroy the Miasmata wh produces it Weather wh is uniformly cold is always healthy In Canada disease is unknown during the cold weather but on the return of warm weather diseases return — Mr. Guthrie makes the same observations of Russia a Catarrh is unknown in that country

Country during cold weather — Pantopides says the Same of Norway — Inflamatory fevers never come on till the Spring — In these cold Countries Inflamatory fevers generally run on to the gangrenous ~~State~~ putrid State in wh the System does not react — Thus diseases are generated in the winter and not brought forth till Spring —

Cold Long continued produces an insensibility to heat — hence the inhabitants of Northern Nations bear heat much better than we do — but this insensibility is lost to every Succeeding Summer in the Same manner as cold —

Persons who endeavor to render themselves insensible to cold resemble the Baron who endeavoured to teach his horse to live without eating — but ~~for~~ at as the animal learns he dies —

Heat succeeding cold of that duration causes Gangrenous or highly Malignant fevers — Van Swieten takes notice of this — The Plague is often excited in this manner — Cold is not influenced by the Vicinity to the Poles — ~~Nowhere~~

when persons live by Reason & experience and clothe them selves suitably they experience no ill effects from cold - Sir William Temple says. 'Cold hardens the animal Spirits - In Canada the Cold is not felt so sensibly as in the States owing to the Inhabitants taking greater precautions against the influence of it - They have their windows double - their walls very thick and never venture out of the house without furs or thick clothing - According to Mr Guthrie the Russians suffer less at home from cold than ~~the~~ the more Southern parts of Europe -

a Canadian Lady who spent a winter at N. York informed me that She felt more cold in one winter there than ever She experienced at Canada during her life owing to the alternations of heat and cold & Moisture

Inflamatory ~~Fevers~~ Diseases were violent in the time of Sydenham requiring blood letting as they now do in the middle States - but Luxury & effeminacy have banished Sizey blood from England - and yet So prone is man to imitation that we prescribe for

for the name of a Disease here just as they now do in that Island - If our fellow Citizens on the Patomack do not bear bleeding so well as those of the middle States - we must ascribe it to indolence & Luxurious effeminacy - Dr Cleghorn in Minorca seldom bleeds up than 16 or 20 ounces in a pleurisy

Dr Mc quain bleeds copiously in Jamaica even when the pulse is scarcely perceivable and Dr. Carr informs us that in the Island of Santa Cruz a North west wind renders bleeding more necessary from the sudden transition in the Temperature of the air - rendering the diseases more violent - It is not necessary to say that we must be careful to regulate Clothes as the weather changes - I have known thousands of people diseased from too little and Clothes - but never but one instance from too much clothing that was a case of Hoemotoxis thus induced - The climate of the middle States & of middle Latitudes is not necessarily unhealthy -

The

Cold is the most detrimental to the Life of Man than any other cause

the changes answer some useful purpose but they require that we should be careful to accommodate to them

Lecture 24th.

Moisture increases the sedative effects of cold as it aids in carrying off the heat of the body – in England the temperature of 30° is more sensibly felt than 10° at Philadelpa owing to the moisture of the air there – The Russian Soldiers who spent a winter at Plymouth declared they felt the cold more severely there than they had done in Russia from the moisture of the air – The coldness of the climate at Holland is owing to the moisture of the air this renders it necessary for the inhabitants to put on winter clothing in the evenings of their warmest days mid summer – Cold acts more or less certainly as it is applied to the whole or part of the body – thus cold feet more frequently induces catarrh than a more general exposure to cold – The cold hand of a Physician on a patients pulse has been known to induce Rigors a current of air

air on the neck of a person wh comes through a broken
pane of glass often produces inflamation and stiffness of
neck — I knew an instance of Catarrh induced by
a young woman leaving off a Ribbon She had been accus-
tomed to wear round her cat — Cold does not act as
a Stimulus in these cases but it abstracts the Stim-
ulus of heat, now it is a fact that the abstrac-
tion of one Stimulus is always followed by an
increase of an other — Say blood & the Equilib
rium being destroyed between excitability & ex-
citement — disease is induced — hence the reason
why partial application of cold acts more power-
full than general as it tends more to destroy
this Equilibrium — Hence I never pres-
cribe for a patient with a Chronic disease
without recommending the keeping the feet warm
— the feet & the mouth are the avenues for
allmost every disease to wh the human body is ex-
posed — The Same degree of Cold acts more
or less powerfull as it is accompanied by windy
or calm weather — I think I have observed
more Catarrhs after a Shill of windy Cold
the
Weather In

Weather than when the weather is calm - Wind acts by conducting of the heat of the body by perspiration -

Thus we have considered the effects of the Sensible qualities of the atmosphere as far as relates to heat Cold Moisture & Dryness - We go on and consider the variety of these effects at different Seasons of the year tho' these vary in the country & in Cities - The following list of Deaths during a period of 7 years in the Parish of Nicholas Situated in Bologne on the Sea Shore of France in 50° latitude published by Dr Daignon will afford an Idea of the avarage number of Deaths in the different Seasons - in winter 365 in Summer 272 - in Autumn 357 - Spring 292 hence it appears that Second degree of mortality is in the autumn - perhaps this might have been in part caused by Marsh Miasmata - In this climate disease prevails much less in winter than it appears to have done in St Nicholas - the Spring & Summer were most healthy and So they generally are here - The Mortality of each month in the year may be Seen from the following list extracted from the Same work - In

In January there died during the 7 years 57 boys
39 girls 11 married Men - 15 Married women 12 widows
18 widowers - Total 142 - in February 40 boys 35
girls 16 married Men 12 Married women 4 widows
4 widowers Total 111 - In March 42 boys 27
girls 9 Married Men 9 Married Women 12 widows
13 widowers Total 112 - in April 30 boys 31
girls 17 Married Men 13 married women 7 widows
& 10 widowers - 108

In May 31 Boys 39 girls 10 married men
14 married women 19 widowers -

In June 21 Boys 27 girls 8 M. Men - 11 M.
Women 1 Widow - 9 widowers -

In July 20 boys 23 girls 11 M. Men 9 do
Women 3 widows 6 widowers —

In august 29 boys 20 girls 18 M. Men
~~18 widows~~ 8 M. Women 1 Widow 9 widowers

In Sept 36 Boys 35 girls 12 M. Men
24 Married Women 3 widows & 9 widowers —

In Oct 43 Boys & 35 girls 8 M. Men &
13 M Women - 9 widows 5 widowers

In December 38 Boys 35 girls 20 M. Men
13 M. Women 9 Widows 7 Widowers Total 122 -

From this

From this View we see that in June there are more deaths than in the Succeeding months — This is not the case in the middle States unless an influenza or other Epidemic occurs wh was probably the case then — April is very fatal to patients Labouring under Chronic complaints especially Phthisis Pulmonalis — June & July are Less are healthy months — the Same obtains in america — and did formerly in England Sydenham observes that the diseases of winter Spend themselves by June and those of Summer by February — Hypocrates made the Same observations in different words — he Says the diseases of Summer are Seldom cured till mid winter and the diseases of winter till mid Summer — I have uniformly remarked that most fevers near bleeding till May — in winter till Feby they partake of the Intermitting & remitting Type

There appears to be a kind of Solstice in diseases they Stop in June & July as it were to take breath or to change one Set of destroying weapons for an other —

Maritime influences the diseases

diseases induced by cold – Night air is from this cause unwholsome – Mr Bruce informs us that his Sailors at the approach of Night became cowardly as the moisture rendered them chilly – Mr Bridam tells us that catarrhs are almost always caught in Spain by exposure to Night air – Serenading is a very common way of taking cold, so much so, that it is a gallant thing to make love in a hoarse Voice

The evening damp is owing to the precipitation of the Dew from the upper Regions of the atmosphere –

The yellow Fever during its prevalence is more frequently taken during the Evening than at any other time – The dews begin to be heavy about the 20th of august in Pennsylvania during the year 1793 in the prevailance of the Yellow Fever Springs wh had been dry for 6 weeks were set running without any rain having fallen – This fact I believed had it from an intelligent Farmer near this City.

Sickness and Mortality continue till a ~~Severe~~ frost or a very heavy rain either of wh check it – I say Severe Frost it must be Sufficient to form Ice the common hoar frost is insufficient to check & rather increases the disease – Slight

Slight rains have the same effect - & the reason I shall presently point out

Let us next proceed to the insensible qualities of the air as remote causes of Disease - The consort of certain impregnations of the air and first of Marsh Effluvia - This is a fruitfull Source of disease - for the production of Marsh Miasmate two circumstances must coincide - to produce them animal & vegetable matter heat & moisture - the heat must be intense and continued some time - Moisture is necessary for no exhalation can take place from dry ground - but it is also necessary that the moisture should be moderate - if it cover completely the Surface of Marshes nothing but pure water will exhale - Moisture and not Liquidity is ~~necessary~~ a requisite Some years ago the marshy grounds at the lower end of this City was inundated in april - Many fishes & much animal & Vegetable matter was deposited on them - in vain was Sickness looked for after it - The heat in

in the Month of april was insufficient to produce putrifaction — The fact was mentioned to me by the late Dr. Baird as a wonderfull thing wh he could not explain. This want of heat must have been the reason — Some years after that a Similar inunda-tion took place in June when the weather was very cool — from the feble apperation of the Rays of the Sun I ventured to predict that the Same heath would continue and it did so — Many facts could be adduced to prove that no morbid exhal-ation takes place from bodies of water — Mr. Bruce in his Travels observed uniformly that in the rainey Seasons where the Marshes & morepes were covered with water the countries round about were healthy — Dabzell in his account of Cayenne observes that when a Sufficient quantity of Rain fell to cover the Maorapes completely with water the Negroes were remarkably healthy — but if a Sufficiency fell to moisten them without completely overflowing them diseases uniformly ensued — This fact is observed in the Dela-ware State that whenever rain falls in Suffi-cient quantity to cover to cover the Marshy grounds

heavy Rains wh cover the ground prevents exhalations

Marsh miasmata are the most deleterious in the Morning and Evening when the Marsh effluvia descends

I have observed the streets in this City emit no Smell in the Middle of the day nor middle of the Night - but in the Morning & evening

an intelligent grazier below the Neck informed me that the New comers were not subject to Intermittent the first year owing to the Robust constitution resisting the effects of the Miasmata

grounds the Neighbor hoods of them are healthy
In this State a few miles from the City
in the Neck as it is termed formed by the Dela-
ware & Schuylkill just before their Junction
the Same thing happens & in the year 1793
when the weather was dry no intermittents accurd
in the Neck — Healthy Seasons we find depend
on Slender circumstances — there are no ~~fixed~~
~~principles fixed~~ fixed principles with respect
to the quantity of Rain wh falls and wh render
low grounds healthy or unhealthy — I have said
in the 4 Vol of my enquiries and observations
that heavy rain promoted exhalation — but by
this is only meant an heavy Shower wh acts
by breaking the green pellicle wh forms over
ponds and in that manner allows of the escape
of effluvia wh were before confined — but where
they continue till they cover these Marshes health
prevails — It was in Barbadoes that the fact
wh I mentioned in my 4th Vol happened and was
received in a letter from Dr Dawson — The
direct Rays of the Sun are necessary for exhala-
tion of Morbid miasmata — The

The Swamps wh are sheltered by pine or cedar trees never emit offensive Miasmata

Marsh Miasmata are said to proceed from putrid vegitables principally — animal putrifaction does not generate it — they often putrify in open air at least without producing disease — a certain Smell comes from them — now no Smell is perceivable in the effluvia we are treating of — perhaps this Smell may be designed like the rattle of the Snake to warn us of our danger and direct to Sources wh if not prevented will generate disease

If putrifaction of animal offalls were sufficient to generate Marsh effluvia Lisbon Edinburgh & Madrid had long ago been depopulated — Stables would not be permitted to remain so near our dwelling houses or Privies and the like to be placed in our yards But the fact is that Volatile alkali is disengaged in the putrifaction of those substances wh perhaps Neutralizes any morbid effluvia that might otherwise exhale — Privies have been said to produce disease — it may be explained

explained from the Vegetable offalls of Kitchens thrown into them —

The Substances which have been known to produce disease by the impregnation of the atmosphere are as follows

1st Marsh Miasmata properly so called from arising from low grounds — 2nd Putrid Cabbages have been known to discharge this Gas wh produces Disease — Dr. Rogers of Cork mentions a case of Putrid fevers produced from this Source — 3d Putrid Potatoes — an instance of disease produced from putrid Potatoes occured in the Island of Tortola from on board a Ship 11 of 13 died wh was the number of the Crew of the disease wh was a Malignant fever 4th Putrid pepper has produced disease — 5th Indian Meal and certain Seeds in a State of putrifaction — 6th Caraway & anised have produced disease at Sea — 7th Putrid onions — & Coffee in a putrid State has generated yellow Fever twice in this City and at Kingston Jamaica 9th putrid Cotton 10th Putrid Flax Hemp Hay & Straw have Severally been known to induce disease — 11th Putrid Canvas & Soiled

of Vessels in a State of Putricity have produced
genuine Yellow fever - 13th - Rotten books
Paper Money & papers have been known to pro-
duce disease - a Diarrhoea from this cause was
brought on in the whole family of the Treasurer
of N. York - Haller mentions cases of disease
in his Bibliotheca induced by rotten timber of an
old log house - it was a bilious fever and effected
2 or 3 persons exposed to its exhalations - Huts built
of green wood have been known to produce disease
Dr - Strong observed when Surgeon of the army
that for the first year in wh the Soldiers kept
in huts they were remarkably healthy - but when
the Bark of the Logs of wh they were composed
began to putrify - wh it did in the 2nd year, numer-
ous cases of disease took rise of its unhealthy
effluvia - This same cause operates in new Ships
Capt Bell informed me of a case of this kind -
Dr - Takes notice of it - Stagnating air in the
holds of Ships frequently produce Diseases at Sea &
when they arrive in Port - The same causes
operate in Cellars frequently - This may in the
latter cases be caused by green wood wh is kept in

in them and as I have mentioned induce disease
Chimneys in Cellars obviate this deleterious
effect - this was recommended by Dr. Franklin

Bilge water has frequently by its Putridity &
Stagnating in the holds of Ships generated disease

The exhalation from Docks Gutters Sewers have
generally caused disease - Dr. Priestly tells us of
a friend of his Dr - who was taken ill in con
sequence merely of stirring a hand of Stagnating
water - Duck Ponds & hog sties have produ-
ced disease - they should never be suffered near
an house & weeds Putrefying near a house has
caused disease - a cold spell of weather will
some times kill these weeds & a warm moist
weather succeeding causes them to putrify -
Certain animal substances as Putrid human
bodies - Raw hides and in one case a whale
on the shore of Holland induced Bilious Fever

In Putrid dead bodies it has some times been
ascribed to contagion but this is not the case
for it occurs when the Person did not die of
a contagious disease - also Putrid fish and many
other animal substances have induced it - Gibbon

Gibbon says Insects have caused disease & instances of Locusts &c –

These are the principle Sources of Disease from Impregnations of the atmosphere —

on what part of the body do these effluvia act? they produce indirect debility in the brain – This in Some cases is so violent that Syncope & even Death have been the first apperation of them – Apoplexy has been thus induced

They appear to act next on the alimentary canal & Stomach – hence the discharge of bile – hence Cholic – diarhoe & other diseases of ye intestines – This leaches us the propriety of exhibiting Emetics ~~emetics~~ in the first Stages of disease from these Sources – (~~and there is often congestion of Bile in the Gall bladder – The morbid action of the Liver~~) The Liver is more or lsp effected in all cases of fever from these Sources – and there is often congestion of bile in the gall bladder – The morbid action in the Liver & inflamation induces an alleration in the bile both of its Secretion & excretion

Mr Galvani says that a bilious fever was

for the method of destroying the morbid Miasmata & rife yoyt my time

5th ly in the Spleen

6th the Kidneys -

4th in the Lymphatic & glandular

on the Skin producing eruption Carbuncles &c --

The Black blood is owing to the absorption of black bile into the blood

Figure to your selves a Nation living for years expos'd to these Causes &c. & you will see the cause of the ~~pebbles~~ color of the blacks -

was induced by introducing Hydrogene gas into the Œsophagus of a fowl & tying it up – The bile in some cases mixes with the blood and gives the Skin the yellow tinge observable in those cases – 3d by the act on the Nervous System and brain producing convulsions headache apoplexy, Palsy madness & Death – hence we often find yellow fever ushered in with convulsions – when these miasmata act on the alimentary canal they induce debility, Diarhoe & Dysentary – they have been said to act on the blood producing that State wh has been called dissolved blood but this Discrasia if I may be allowed the expression is the effect of the action of the blood vessels wh as it were pulls it to pieces

This has been very erroneously ascribed to Putrifaction by Sydenham – he however observed that this kind of Blood occurs most commonly in cases where Miasmata have been the remote cause

These Miasmata arise from the Earth in the Morning – they are Rarafied by the heat of the Sun and ascend to the high parts of the atmosphere in the evening they are recondensed

recondensed & ~~descend~~ and precipitated to the Surface of the Earth - that they have no influence - So that the Morning & Evening are the only time they act

Are the Miasmata producing yellow Fever the Same wh when acting on the bowels cause dysentery -? I answer in the affirmative - it produces the different effects according as it is combined with more or less Moisture - Thus a Mill pond at the foot of a hill Shall produce dysentary at the Summit of the Mill and yellow fever at the foot of it - Mr Bruce has made this observation - hence the propriety of Sydenham calling it "Febris intro vena" this opinion is held by Sydenham - Jackson Clark & Cleghorn - not only Dysentary but bilious Cholic is the effect of this Same cause - also the bilious remitting & intermitting fevers but of this more hereafter -

We proceed next to treat of animal Miasmata & human Effluvia as remote causes of disease - However Mortifying it may be to the pride of ~~many~~ Man yet it is a fact that he is under the necessity of emitting effluvia wh engenders disease - They are derived from the following

Causes - 1st want of blankings in linen wearing ~~shirts~~ too long without washing - Mr Howard relates numerous cases of disease brought on in this manner - there is a difference between Linen & Cotton in this respect - Linen requires to be changed most frequently - the diseases wh prevailed in the army in the campaign of 1776 was produced by the Rifle Shirts wh the Soldiers then wore -

2ndly confinement of Numbers of People in close rooms - hence disease is produced among the inhabitants of Egypt who crowd together at the over flowing of the Nile - In Jails hospitals Prision Ships & the like - It causes the diseases known by the name of Ship ~~Prision~~ Jail & hospital Fevers - also at Schools & Some times produces diseases - 3d Low Vapid Vegitable diet - The influence of food on the Excretions of Sweat I mention before 4thly from a Putrid animal Diet - 5thly from a Scanty quantity of food - 6th from certain affections of the mind - 7thly From a mixture of strangers together - Dr Blane mentions Cases of Typhus from this Cause - A Similar Disease was Generated in the American Army during the

the Disease formed in any of these ways we call the

Inactivity is the Cause of Disease in animals

army during the Revolution by the introduction of Recruits into it — From this enumeration of the Sources whence Animal Morbid Effluvia are derived we are enabled to explain its frequent occurrence in time of War — From the Uncleanliness of ye Soldiers — their being crowded together in Prision Ships hospitals & and other places of confinement — from their Low Rapid aliment — its Scanty quantity — Sometimes bad quality — the Collection of Strangers together & affections of ye Minds of Soldiers leaving their homes Being Besieged in Cities &c &c we every cause combind wh tends to produce disease in this manner — Famine & Pestilence are thus closely connected — Shakespeare describes them as Dogs "Crouching for employment at the feet of Caesar when girding on his Sword" — a Sublime Idea —

Can an human body infect it Self? I answer yes — By the Stagnation of the Perspirable fluids in the extremities of the excretory Ducts — It then acts as a Stimulus & induces a true Typhus or Jail Fever —

Letter 25th

Lecture 25th

The following circumstances deserve to be attended to in the history of Human Miasmata — In the first place it is more frequently generated and is more active in winter than in the Summer Seasons — this was remarked during the war — that its operations was much milder in Hospitals during the Summer than in the winter — The reason probably is that the doors & windows are kept shut during cold weather and the Miasmata stagnate & become more active — In the house of Employment wh was the hospital during the War in the year 1777 the Jail fever arrived and raged in April. the weather became warm in May and the doors of the house and windows were opened. the Miasmata dispipated & the Disease disappeared entirely — on or about the 20th of May however a cold Spell of Weather commenced — the doors & windows had to be closed — the consequence was that the fever came on again with fresh Rigor — I recollect it destroyed ~~2 of~~ two

* Holmes & Young –

* whole family suffered by it

two of the Surgeons* and one mate and increased in mortality greatly — Blane mentions several circumstances corroborative of this fact — he says the Ship fever was always most Violent in proportion as they approached the Coast of Great Britain & uniformly subsided when they got near the coast of the West Indies the Sailors in the former case remaining below deck to avoid the cold moist air — and in the latter they remained a great part of the time above Deck — & thus enjoyed fresh air — The disposition of Cold likewise to concentrate these Effluvia is evident in the yellow Fever — This disease is never contagious in the West Indies & but rarely so here till Septr when cases of Contagion do accur from the doors & windows being shut & the Effluvia concentrated

A Second Circumstance in the History of Human Miasmata deserving attention is that it adheres to cotton & woolen Cloathing for a considerable time — I knew a case epidemic fever wh originated from a Tarking worn by a Servant round his neck while Ill of a Typhus fever it arrived in Hartford County Maryland 5 Months after the man was Sick by wearing a Coat taken out of his trunk & the it adheres also to wood and even brick walls — a case of this kind happened at the

yellow

yellow Spots of Typhus Spreading from brick wall
5 Months after a person who had been ill of it had
left the room – This teaches us to place the beds of
our Patients in Typhus in the Middle of the Room

This is no new fact the Leprosy of the Jews was
formerly so malignant & contagious as to adhere to
the walls of their houses for a Long while –

It is a curious circumstance that the cont-
agion of Typhus does not adhere to white washed
walls nor to floors of Earth – Mr Howard long
ago noticed this fact – Count Saxe in his
reviews mentions that ground floors should always
be preferred in Soldiers huts – he never allowed
them covered with boards or any other Substance
for this reason – nor his Military hospitals –

Dr Tilton observed the Same fact during the
war – a 3d circumstance to be attended to is that
these Miasmata act most powerfully on a
Debilitated Subject & Seldom where there is any
Stimulus constantly ~~acting~~ opperating – hence
pregnant women & People with Sores Seldom are
afflicted with Typhus – In the former the Stim.
of distention – in the latter of the ulcer
prevents

prevents the apperation of the disease - but if the ulcer is healed or the woman delivered they are liable to the disease - the circumstance of debility favoring so much the apperation of these Miasmata shews us how useful it is to remove our Patients from the Neighborhood of the Miasmata as soon as they recover for their weakness will render them liable to relapse if exposed to its influence - After Amputation Patients are very liable to Typhus ~~if exposed to its influence~~

4th The violence & certainty of ~~the apperation~~ their apperation is increased by disposition of the Mind as grief - fear or the like debilitating Passions

Hitherto we have considered animal Effluvia as confined to the human Species but it proceeds from other animals than Man Dr. Fordyce mentions a case where a Disease resembling Typhus was caused among Sheep and live Stock sent on board a Vessel from great Britain to N. York wh carried of Numbers of Sheep Hogs &c Indeed I think Hydrophobia is owing to a retention of certain effluvia - excretion of animals but more of this hereafter -

W Hoff

9th — depression of mind

I cured the officers by bleeding Purging &c —

But to most of the Soldiers I gave hope at the first attack of the disease

* I have omitted copying on the Plague as I learn that Dr. has altered his opinion respecting its origin wh. I shall hear the next course of Lectures

What is the Name or rather what is the Nature of the disease produced by those animal effluvia?

It is called Slave Nervous Fever, Jail Fever Hospital & Ship Fevers & by Cullen Typhus mitior — These are all one disease — It is produced by great debility wh is chronic — it comes on gradually frequently without being preceeded by a Chill or Stupor or any very observable premonitory Symptom — Its action is first on the arterial System wh it quickens & renders Irregular — It acts also on the Stomach & alimentary canal excites vomiting of bile & voiding it per Anum — in a few cases tho' this is uncommon —

The bowels in general are regular no Diarrhoe or costiveness — Blood — — — — — — — — — I frequently is attended with abscesses in different parts of the body — Bubos Swellings of the Neck arm pits &c — often ulcer in it — The bile in some cases is changed —

From the bubos ~~Ab~~ Apthous a Second grade of the blood —

Plague is the Second degree of Fever, produced ~~from~~ by this cause — This disease

Coino Miasmatic Fever.

Dutch Dish - described Mr. Dattner

Salt (or fresh Pork) the salt is best) dried apples and dough boiled together in a Pot the dough must be made so as to rise and keep it over a moderate fire and stew them together as you would a Pot Pye — this dish is called Tom Snuddle & Snicks — a most excellent dish the pork apples & dough are all put in the Pot at the same time — R. C

To the List of Fevers from human Miasmata may be added the Influenza This I think is an inferior degree of Typhus mitior it is produced from effluvia of living animals & Putrefying dead animal Matter – Lempriere takes notice of this –

When Typhus mitior occurs it may be distinguished from the diseases caused by Marsh Miasmata – 1st by prevailing at all Seasons of the year but more especially Spring & Summer where as yellow Fever prevails in autumn Principally – In Typhus there are no intermitions or Remission as there are in yellow Fever – and in Typhus there is Seldom discharge of Bile – 3d from the action of Typhus being more moderate than than diseases produced by Marsh Miasmata Seldom requiring bleeding during the prevalance of Typhus in Camp in the year I dont think I bled more than 6 patients with Typhus the action of the Vessels was so feeble – 4th Typhus is contagious – Yellow fever and diseases from Marsh effluvia are not – 5th ly They may be known from a knowledge of the

of the remote cause — In autumn the Marsh Miasmata act most commonly —

Bilious Fevers as they are termed are to be distinguished by 1st they occur principaly in the autumn 2nd from Remissions & discharge of Bile — 3rd from more Morbid action accompanying them thondiphus 4th from being in the Vicinity of the remote cause Marsh effluvia — 5th from the influence of heavy rains checking them — 6th from attacking habits previously the most Robust —

Dysentary arises from either ~~from~~ human or Marsh effluvia — but I think most commonly from human — The different methods of treating Jail Fever accompanied with not or little morbid action caused me to be thought wrong in my Idea of it — but as in bilious Fevers some cases require bloodletting & Som are cured by Stimuli So is the Typhus — I would as Soon bleed in the Typhus if the pulse indicated it as in any other disease — Typhus is produced by putrefying Dead and the effluvia of living animals

Plague only from the excretions of morbid living animals — Take notice Quantn of this

of this distinction it shews the necessity for cleanliness in the diseases - Pure air & wholesome diet to guard against the action of the remote cause —

again Fevers from Marsh Miasmata cannot be carried to foreign countries but from what has been said it is evident that Typhus Fever can —

Quarantine Laws are therefore calculated only for the prevention of those diseases produced by human effluvia - these may be readily known from those of Marsh miasmata by ye Inguinal Swellings or bubaes - This Symptom does not occur even in the worst cases of yellow Fever - That the Plague is produced by Miasmata of Human ~~effluvia~~ bodies is believed now by simple Mumio Lemprière ..... in Egypt it is supposed a disease resembling yellow Fever has been produced by the overflowing of the Nile wh is not genuine Plague -

We proceed now to the Third Source of disease from foreign Impregnations of the atmosphere viz Phlogisticated air - this exists in wells & cellars in Some cases - many cases of Death have arisen from it - You must all of

all of you have heard of the death of some English men who were confined in a place called the black hole in Calcutta - a place filled with phlogisticated air - Four persons were destroyed by going into the
. . . . . in the house of Commons a part where the Phlogisticated air of the room always goes to - they went there to take notes from a debate & were destroyed by the impure air I am disposed to think that many Diseases of Children are owing to this **accumulation** of impure air in close confined School rooms - I knew a lady who could not go into an evening company without experiencing a Vertigo & Headache from this cause and a gentleman in whom the Gout was excited by a close room wh appeared in a pain in the Rectum

Epilepsy is usually first perceived in crowded assemblies hence its name "Morbus Comitialis"

4thly The air is impregnated with foreign Matters by the combustion of certain Substances as charcoal this gives it a most unwholsom quality - Sulphur renders air in wh it is burnd unwholsom by the production of Volatile Vitriolic acid - this is found in the combustion of common coal - it

* Ramsey of Philadelphia

A stimulates the Lungs very much - Dr. Ramsey says that he was informed by Dr. Gardiner of Charleston S. C. that a number of years ago - the inhabitants burned coal are winter - but the number of Catarrhs was greater that year than he had ever known before, from that cause so that they left it off

5th the air is adulterated by certain effluvia from Manufactories especially such as Lead Sulpher & arsenic are used in - Some particles of the Lead are volatilized & thus impregnate it

A 6th Source is the Moisture & effluvia exhaled from certain plants - hence the Night air is unwholsome from their discharging it at that time Bruce says an exhalation from the ground apests & co opperates with this cause - The Harmatan or as Bruce calls them the Samoon winds are unwholsom by passing over large beds of Bitumen wh give out volatile Petrolii acid - it is said that persons who die from respiring this Samoon winds putrify in a few hours Now we know the Vitriolic acid to be antiseptic but the cause of this putrefaction you will hear hereafter - 8th Serocco winds - these prevail at

at Italy & naples they acquire their unhalsome qualates by papsing over large beds of Sand wh heats them and deprives them of Moisture — they induce debility Languor &c —

(This lecture was here cominued by a Slight indisposition of Dr. Rush,

Lecture 26th

Lecture 26th

We proceed with the remote causes of disease as connected with the atmosphere – The next in order is an overproportion of pure or oxigenious air in the atmosphere – This by its too great Stimulus induces indirect debility wh predisposes to inflammatory diseases – another cause which renders air fatal is mentioned by Mr Bruce and called by him Mamattan – This he conceives to be exhaled from the earth in certain parts – he lost two grey hounds from it near a Town called Senar on the Banks of the Nile – Man is not affected by this it only acts on animals who respire from near the Surface of the Earth – What was remarkable the animals that die from this cause shew no Signs of disease – The place where Mr Bruce observed it was in Latitude 13° North Longitude 30° East from Greenwich – it is only observable he says during the rainy Season – The Lemon Tree Rice & Millet are the only plants wh are found near this Spot of earth – and these plants are known to thrive in Mephitic air – The

The Earth of this place affords much Salt by Lixeviation — Mr. Bruce has observed this in another place than the one just mentioned & he observed it to produce a pricking pain in his feet when this air produces death in plants — I believe it proceeds from an excess of Stimulus —

Let us proceed next to enquire into the effects of Particular Situations on disease — This differs according to the State of cultivation —

New uncultivated Countries are always healthy — Death is so rare an occurance in some of our western frontiers that people collect in bodies to view its effects on human animals when it occurs — New countries are less healthy however if the Soil is moist and exposed to the action of the Sun but if the woods prevent this they are healthy — Thus in Delaware State the first act of Cleaning ground is the Signal for Disease — as the removal of the trees allows the rays of the Sun to enter to the Marshy ground which they Shadowed — but by improvement & horticulture they become healthy — hence

the

healthiness of the Northern & Middle States wh some years ago were much less so - the reason of wh was that cultivation did not go on in proportion to land cleared as in Delaware and Maryland - - Hence proceeds the healthiness of Connecticut wh I am told was very subject to bilious Fevers 60 years ago - but Dysentery is now more common in the Country owing to the rapid food prevailing more than in Cities - Cities are the Jails and Prisons of the human Species - Cain we read in Genesis was the first who built a town. his object was probably to destroy by the Bustle of a town the remorse he felt for having murdered his brother — The air of Cities is impure from many causes from Manufactories Docks Privies Gutters &c - and the Respiration and <u>combustion</u> continually going

going on detracts much from the purity of the air. It is said in Cities that 3 of 5 persons die before they attain the age of 80 - near twice as many deaths occur in Cities as in Country - Dr. Price thought no person should go to London under 30 years of age - The Miasmata of Cities generate Typhus Mitior consumption & billious diseases - Dysentary does not prevail as I observed in Cities so much as in Country - from the use made of Sea Coffee wine & animal Food - while I was a Student at Princeton College a fort occured wh favors the opinion - A Dysentary was Epidemic among the Students - but no Student from from N. York or Pennsylvania was affected by it - because they had been used to the food they got at College - where as the others had been used to live on Bread & Milk and the change of Diet brought on Dysentary

The quality of Soil has an influence on the air - if it be Sandy the air is much hotter - Inflamations of the Eyes are common on Sandy Soils

4th Situation has much influence -

Mountains

Mountains are much more healthy than than low countries - hence we find there are fewer Deaths and more old people on the Mountains of Switzerland than in any other part of the world - Perhaps one reason for this may be that Mountainous Countries are covered usually with ever greens - there are 2 exceptions to this rule Calcutta & St Domingo here the declivities of hills are healthiest according to Dr. M'Clain - this must be accounted for by the great heat of these countries causing the greater ascension of the Miasmata wh are attracted and condensed by the cold on the top of the mountains - the Same thing occurs according to Mr Volney on Smyrna - Twenty to twenty Cities or villages or to marshy grounds in the Country dispose to bilious remitting & intermitting Fevers - for disease to be produced in this manner it is necessary for wind to blow over the Ground - Now for can these Miasmata be carried - It has been Said 50 Miles Boerhaave Says 20 I have Known a case where it was constantly carried 10 Miles on the Bank of the Susquehannah - Trees Stop

Trees stop its progress in a very great degree
woods of course should be left between Marshy
ground & dwelling houses in the country —
the exhalation from rivers is only from the
shores not from the middle of the rivers —
the famous Breakbone Fever of 1780 extended
no farther than Market Street and a few
streets from the Delaware — Mill ponds are
a fruitfull source of disease in the country —
an old gentleman informs me that he never
knew an instance of Bilious fever till within
these 25 years since when Mills have been
erected there — by planting trees around Mill
ponds these effect may be prevented —— 6th

6th Vicinity to Deserts has a great influence on health – The Scirocco winds for instance are nothing more than pure air heated and dried by passing over sand near aleppo – Mr Bried one speaks of their coming to Naples – 7th Vicinity to wooded countries make an alteration in the air of a Season – Thus the Temperature of the air of Italy has been much warmer since the distruction of the woods & the cultivation of Hungary Germany & other Surrounding Countries – The change thus effected is merely in the Sensible qualities of the air – the coldness of this climate will be much relieved probably when the woods near the lakes and on our western frontiers is destroyed & the ground cultivated – The air ~~of~~ on the Sea Shore has some peculiar properties wh render it unfriendly to 3 diseases asthma Pulmonary Consumption & Rheumatism and probable to all others – There seems in many other cases to be a collection or mixture of air – as in Military hospitals For there while dressing Sores tho' the Smell was abominable I have never fainted – & yet

I Never Knew a young Man Reside at the Penn Hospital 2 or 3 years before he became Pale & contract Consumption –

Some Cellars are unhealthy by imbibing & retaining Rain water – houses becomes unhealthy by age – By Small close Smoky rooms – & by uncleanliness – Families are rendered unhealthy by the water they use –

a Lady of this City whom I attended I found was Sickened by the Roots of the Lombardy Poplars insinuating into the well – Large Rooms are always cooler in Summer by a Number of degrees than Small Rooms

and yet when I have come out into the open air I have vomited - on what does the unwholsomness of the Sea Shore depend? Its moisture has been said to cause it - but I think it depends on its Saline particles - Why then does it not occur at Sea? May not this be counteracted by the motion of the Ship at Sea imparting vigor to the constitution wh enables it to resist the action of these Saline particles

In diseases of moderate Morbid action this air is medical - perhaps the air may be too pure here - hence it is said that Consumptions are more quickly fatal at Madeira than any other place - Several other ~~real~~ Local Circumstances affect the air - those who reside in Cellars are uniformly unhealthy - and generally of a pale color Consumption & Rheumatism affect them - houses newly plastered are unwholsome - perhaps from the moisture - houses Surrounded with trees are unhealthy by confining the exhalations near the houses - Some Situations are ~~eal~~ healthy & we know not from what cause - Thus I knew 2 cases of Malignant fever in a Small court

Court called Zacharies Court where no Local circumstances appear to account for the fact — again I observed in 3d Street between Market & arch Street — Some years ago 10. or 12 Deaths occurred on the west side and only 2 on the East side of the Street in the course of 9 years — This might have arisen from a current of infected air passing against the west side of the Street only — or perhaps it might have been owing to a Specific contagion — The influence of Seasons have already been Spoken of — A Snow in february & Mark produced from the reflection of the Rays of the Sun Sore Eyes wh were almost epidemical — A gent Riding from Lancaster to this City had his face blistered & Eyes much inflamed from this cause — The

The presence of Light has an influence on diseases I have mentioned some persons who cannot sleep without a light in their rooms — Exacerbations of fevers are some times owing to this cause — I have taken some pains to discover whether the Thunder & Lightning have any influence on the atmosphere wh affects health independently of the Change they produce by the alteration of the course of Winds — I have only been able to find one fact wh renders it probable & that was the case of a lady at Sea who was able to tell whenever a Storm was coming on & when it was about to come from a headache caused by the Electric fluid in the air —
Earthquakes & [Auroras] Borealis have no other influence on the System than what they produce thro' the medium of the Passions
In Barbadoes Dr Lane says they chase away all acute & Chronic diseases of the Island —
The Effect of explosion of Cannon & other Loud noises in some cases produce deafness — 2 cases of this occurred during the Revolutionary

war

a Slight fever is produced at the first onset of
a battle from this cause — Dr. Cullen mention
a case of Epilepsy produced by the noise of a
horses feet in the Street — The officers at the
Battle of Princeton tho the weather was very
cold felt a burning Sensation from this cause
in their Ears and a warmth all over — I shall
here make a few observations on the effect of
Situation on Diseases — 1st persons who emigrate
from one country to an other. more especially
a hot to a cold climate are disposed to fevers
Some times they are Seized the first but most fre-
quently by the Second year — this is called Season
ing

ing 2ndly persons who move from a Sickly to a healthy Neighborhood acquire diseases wh they could have escaped had they not removed from the Marshy Situation – here the change of air acts on the exciting cause – it is a new Stimulus to wh the System is not accustomed – 3dly old people remaining from a Marshy Situation frequently die from the loss of the Stimulus of the Miasmata – the same accur in plants if removed from the neighborhood of Marshes – 4th Persons after long Sea voyages become Subject to Catarrhs by a mixture of Land & Sea air – A Sea Capt with whom I Sailed in 1766 could tell his approach to land by his sneezing

(however Poisonous to young people & children become a healthy Stimulus (wh die) to old people)

5th . . . .

6th Change of air influencing disease is change of Climate is change of Climate disposing to the epidemics of the New Situation –

The influence of the Moon on disease I must not neglect to ~~mention~~ notice here – the influence of the Moon acts in all animate & in animate Nature – on Water – Vegetables – Oysters

nearly the lowest link in the chain of living animals - It operates disposing the latter to open their mouthes its influence on disease is noticed by Dr Balfour at Bengal - he observes that more deaths accur 3 days before & 3 days after the full & change of the moon than during the same time in other parts of the month - he has written a very learned and ingenious treatise on this subject well worth your perusal - Diemberock long ago made a similar observation - Dr Johnson made the same observations at Jamaica — also

also Jackson & — ..... A 2nd Influence of the Moon is particularly in Epilepsy — 3d in Mania hence Madmen are called Lunatics 4th in Women — 5 In Hydrocephalus internus — & 6th In Haemoptises or Spitting of Blood — 7th Its effects in fevers & chronic Cases is very remarkable — 8th Haller relates a case on the authority of Benedictus Sylvaticus which the moon had a very particular influence on a Patient with calculus in the bladder 8th Killphatic Says the Moon has an influence on the number of Births — wh is in the full of the moon Eclipses of the Sun & Moon have some influence on the body — Lord Bacon fainted at the Eclipse of the Moon Bera is Said died at the moment of an Eclipse of the Sun — Dr Granquier mentions that 20 Soldiers in the army at the Netherlands were Seized with the apoplexy at an Eclipse of the Moon 1746 —

We come next to Treat of Specific contagions — these I have taken pains to find out Books that are written on them make them out to be much more Numerous than they really are

The original Specific contagious diseases

are

are the Small Pox Cynanche Scarlatina
& Maligna - Measles - Whooping, Cough Chicken
Pox - & influenza — The Small Pox - this
may be known before the eruption on the Skin by
a head ache pain in the Back weakness & Sor-
ness of the Stomach - the Lungs & throat as
well as the Skin are affected with Small Pox - hence
the Cough & Salivation wh attends the Small
Pox — the time in wh the eruption appears
after the Contagion has been in the System is
Generally from 14 to 20 days Generally the former
on the made of Inoculation I refer to My 2nd Vol.
of engr & observ — — Cynanche Scarlatina

Scarlatina & Maligna & Anguina - these have been Supposed to consist of different Specific Contagions - but I think they are all a modification of one - for an account of this I refer to Cullen & Johnsons Treatise on Sore throat

This disease is accompanied with more or less Morbid action - of course require different treatment - It probably depends on the insensible qualaties of the air - - - - - - - - - - - - - - - - - - from 2 facts relative to this disease - 1st it is the most universal contagious disease - it affects not only a City or a Country but in Some cases the whole globe - 2nd it is less altered by Climate than any other Contagious disease - if you read the account of this disease in Jamaica and then in Europe you will think them coppied from each other

III The Chicken Pox is the most mild of the contagious diseases - I have never known a case of it prove mortal

IV. The Meazles this disease has a Specific action on the Skin & Lungs it is more Mortal

Mortal than the Small Pox I do not suppose this to be the Specific offspring of a bad organism -

V The whooping cough - - - - - - - - - - - -

VI Influenza - affects the arterial System & lungs this disease I do not believe is changed by Winter or the Sensible qualities of the air - because we find it the same in all changes of the weather - I have seen it epidemic in this city 5 times and never once changed by dryness - moisture Cold or heat - 2d - it affects Neighboring towns & countries in succession - 3rd it has evident marks of being contagious in every country where it is highly inflamatory and after requires bleeding

The

The Small Pox is of a more inflamitory nature in Winter than in Summer when it is accompanied by bilious Symptoms — the Same observation applies to the measles — Dr Watson Says the Measles has ame been malignant — The Scarlatina ~~bynanch~~ anguina is more affected by the Sensible qualities of the air than any other contagious disease

I Shall conclude this lecture with the following observations on epidemics — 2nd no. 2 Specifically contagious Diseases can act at the Same time on the blood Vessels — the Small Pox & Lues Venerea Mr Hunter has proven never exists at the Same time — Mary queen of Scots is said to have died of the Small Pox & Measles at the Same time — this I do not believe — they may be blended & each Some what changed by the combination — I would as Soon believe a horse can Trot and Pace at once — hence we hear of reigning Epidemics — one Superior in force assumes the Sovereignty and all diseases wear its liveries — Thus fevers in the Autumn of 1783 were all marked with Symptoms of Scarlatina — Thus fevers partake of the Symptoms of the Small pox according

according to Sydenham – Huxham describes a fever attended with the Symptoms of the Small Pox as Sweats Eruptions – apthae Sore throat &c –

Permit me hint to call your attention to this fact it was taught me first by Dr. Sydenham and has been of more use to me than any one fact I know of in Medicine –

Rammazani tells us that Dr. Bornstorf principal Physician at Modena informed him of a Camp Fever which prevailed in the army that produced such an effect on the Soldiers wounds as made them believe the wounds poisoned untill he heard that the ye same fact occured also in the Enemies Camp – Cleghorn in Minorca says that Broken legs put on the Type of Bilious Fevers during the prevalence of ~~fevers~~ Diseases – [The Measles which prevail now in our City partake of the Nature of our autumnal Bilious Fevers hence I explain the affections of the Stomach accompanying them

Dec. 18th 1801 –]

and all the

and all the diseases of 1793 partook of the nature of yellow Fever — Many a [Marvelous] ... Symptoms will be explicable by a knowledge of this fact wh you would other wise be at a loss to explain.

If this fact be of as much use to you as it has been to me you would be compensated for your trouble if I were not to mention another in the course of my Lectures — For ignorance of it has been a great cause of quarrels among Physicians — Sydenham mentions that in 1670 that intermittents were Epidemic & every other disease wore its its livery even the Small pox had remipions & exacerbations In 1671 & 1672 the Small Pox Reigned (in London) and every other disease disappeard for a ~~Shortime~~ while or else assumed the Symptoms of Small Pox So that you See Epidemics not only force other diseases to put on their livery but chase them from their presence — Epidemics differ in degree ~~from~~ of their Relative force in the Begining & end of their reigns — thus the Small pox is more powerfull than the Measles — when the Small Pox rages the Measles disappear — but in the close of the reign of the Small pox the

measles

measles become more active and assume the Sovereignty — I said the reigning Epidemics chase away all other diseases — in 1764 & 5 the Plague had no rival in London — the Measles in this City in 1789 banished all other Diseases — the Measles often chase away the influenza —

5th Contagions do not act on every person at some times & yet they are seized unexpectedly when they suppose themselves free from danger — this happens from the impression of exciting causes — at some times more than at others — 6th they vary in their attacks as to force & violence — they may be compared to representations of different things — some in Moraic work & in others the impression is so weak that it may be compared to a picture done in Water colors — 7th Epidemics affect inhabitants of one country only — thus in the year 1793 Westindians & Frenchmen escaped the yellow Fever wh prevail'd here — Jews were exempted from the Epidemics of Germany likewise the Italians — the Epidemic prevailed in France among Englishmen only — & hence the term "Sudor ~~Anglicanus~~ Anglicanus"

8th

8th Epidemics affect persons of one Color only. Thus at Marthas Vineyard an Epidemic prevailed among the white who did not affect the Indians - & another wh did not affect the white Inhabitants the Latter was a bilious Fever - according to Ramsey the Negroes of South Carolina ~~the only~~ generally exempted from the Epidemics of the white & vice versa - 9th Epidemics affect persons of one age only young in children & not in adults - & in adults diseases from wh children are exempt hence we may readily conceive that in the time of Moses an Epidemic raged wh carried off only the first born of the Egyptians - Similar facts occur in more modern times - 9th Epidemics are confined to one Sex only - Thus in the year 1795 an Epidemic prevailed at Derby in Connecticut wh affected children of the female sex only - In Italy an Epidemic prevailed wh carried off 60 000 Women and Scarce one Man 11th Epidemics affect persons of a certain rank in Society only - In 1556 an epidemic wh was confined to the rich appeared in Holland - & heaven has ordained the Poor to be the first objects of the ravages of the plague 12th

* The Professors Painter & Students of the College of Alstorf were exclusively affected by a Dysentary & prevailed among them ——

** 18thly Insects are influenced by Epidemic diseases — they are more abundant during a Sickly Season than in common years and there frequently appear new insects —— !!!

We all know that wet or Rainy Seasons produce great quantities of Insects by a Natural cause — & Dr Rush says that rainy Seasons produce disease — now does the Epidemic produce the Insects? R. C —

X Moses in the account of the Plagues of Egypt relates the appearance of flies lowsts lice &c & accompanied the bolls Blains & Murrant in the battle in Egypt — hence we see that Science & Revelation are not opposed to each other

+ They are as Irregular in their appearance as rain hail &c —

12 Epidemics affect persons of a Certain profession only* 13. Epidemics affect Inhabitants countries ~~of~~ not exclusive at least very differently owing to their Peculiar predisposition indeed Families differ in this respect Some more liable than others —

15th Epidemics are confined to the human Species only 16th They Some times affect other animals Jointly with Man as Cats dogs &c — but Seldom all animals generally particular Species being more liable than others Cattle Sheep Dogs & Cats Seem Subject to Bilious Fevers also 17th Fish in Some cases — 18th even Insects are affected by them** Many people have predicted the approach of a Sickly Season from observing the increased number of Musquetoes* — XX It is remarkable however that Flies is an exception to this remark for they very often die during an Epidemic — Insects as ~~Locusts~~ frequently accompany the Plague in in Egypt Lempriere has observed insects accompanying Murrain & Plague in Africa — — as Sounds have relation to each other So have epidemics with certain other rare events — 20th Many Birds disappear during the prevalence of an

Epidemic

10th - by Trees & the fruits of the Earth are affected by Epidemics - the former die - the latter are Small Knotty & not much Sooner than common Seasons & and before or after ar attending the prevalance of an Epidemic winds are observed to come from an unusual quarter accompanied with more or less rain - of 120 rainy Seasons of wh we have accounts of 91 of them were Sickly -

1799 The Pigeons in Luzern County were frequently found dead in the woods - The Trees dropped their leaves every year during the yellow fever in Phila. - the house flies leaves the house - the green flies appeared

Why this uncommon appearance of Nature is it to give information that a Ship has Sailed with Contagion Packed up in a hogshead or Smeared over piles of Lay wood ?-

Epidemic and those that are confined die in their Cases - a remarkable fact of this kind happened at Luzerne County Last year 1799 while they were visited by a genuine yellow fever few birds were visible

21st The Seasons accompanying Epidemics are generally very hot or very cold or Tempestuous

22 the appearances of Eclipses & Comments have probably some connection with the recurrence of Epidemics as Calm - Earth quakes. Eruptions of Volcanoes Harrycanes &c. hence it has been supposed that pestilential matter exhaled from the Earth - Great & Mortal Epidemics influence diseases upon themselves - In 1664 a bilious Remittent Fever prevailed in London ..... In 1792 diseases were so inflammatory that bleeding to some extent was requisite for their cure since the Epidemic of 1793 in the united States diseases have required a Copious bleeding & Refuse to yield to the Bark Drennerock observes that abortions during the plague are unusually frequent - and they appear some times previous of it - Birds fly to different countries as if to avoid it - The air during the prevalence of Epidemics is unusually calm - In the Plague wh appeared in London 1665 and during the yellow Fever in 93 at Phila birds panted for breath & flew heavily through the air - Dr Baynard says

Says the weather Cocks in London did not move — Epidemics appear further in different years — as Calais &c —

From the phenomena of the Eruptions of Volcanoes Hurricanes Earthquakes Fish dieing &c — it has been supposed that some addition is made to the atmosphere from the bowels of the Earth — at present we know not what this addition is — whether of an Electrical Matter (or what) that there is however some addition is probable — This change in the atmosphere is sometimes general ~~at~~ over the whole globe and at other times prevades only part of it — as different Cities Countries & the like — When these changes exist they produce diseases with the aid of very feeble exciting cause — but in general miasmata cooperate with them to produce Epidemics — Probably the same change takes place in the atmosphere of Egypt & the U States & the different forms of the disease depend on Local circumstances of the miasmata & the causes wh excite the disease

This is a most consoling Idea for altho' we cannot correct the inflamatory constitution of the air yet the U. States may be preserved from Disease by washing them from the cooperating Miasmata — The air has an influence on persons not confined by disease — In 1793 I observed an universal Languor — Quick Pulse — and headache in

in Persons walking & doing their common business

It was remarkable however that Persons Subject to chronic complaints as habitual head ache were relieved & were in better health than usual — Baynard observed an uncommon disposition to Sweat in every body in London during the Plague — and he says "all had Creeping & Low pulses" — here Gentn. the the Stimulus of this Epidemic air was so great as to prostrate as it were the action of the pulse — while in our Epidemic of, 93 it was barely Sufficient to quicken the pulse Sweating was also common here —

28th Epidemics originate in all Countries — after they are formed they are propagated by contagion — as the Small Pox — this cause does not exist in Cities — here all are alike exposed to the remote cause of the disease — but it may be carried to a great distance and propagated by contagion as in the plague —— - - - - - -

- -

Volcanoes Earthquakes Commets Meteors Plague & yellow fever appear to have a Sympathy between them selves — — The Original birth place of particular diseases has been much Talked of

you must watch Epidemics with a Spie glass
& a Micrascope every year every Month
every week & even every day - This Dr Sydenham
did & with all his care he acknowledged he lost
some Patients on the appearance of every new
Epidemic

talked of - At first they were derived from heaven then from the Planets - but at length ~~from~~ Siam & Egypt have been fixed on as the Native place of them

That this at the end of the enlightened Eighteenth Century should be a prevailing opinion is a disgrace to Medical Philosophy - They are certainly generated in every large City - Quarantine Laws have been enacted to prevent their introduction into Cities - It can only serve as like the ~~Bird~~ Bird Ibis of the Egyptians (as Mr Webster justly observes) to engage the attention of the inhabitants - They conceive their Plagues owing to hot Lybian winds bringing Serpents among them - We derive ours from Bales of goods & infected Ships - The Egyptians adored Ibis for destroying the Serpents and they died with their Plagues we worship our Quarantines with as much Sneep.

End of Vol. 3d

Lecture 4th. Nov. 11th 1808

Doctr. Wister commenced this Lecture with the following questions to some of his pupils —

How do you know that the Arteries are elastic?

in What manner Sir, do you think the Valves aid the blood in its direction forward?

Can you tell me Sir what is the reason that there are so many Superficial veins & Superficial Lymphatics? —

* here the Dr observed that in a very fine injection of the Kidney, that he observed the arteries & veins run parallel with each other till they become very small when the vein joined in substance with the artery & a third kind of vessel was formed wh is the excretory vessel - this he thinks to be a mere continuation of the artery

What do you mean Sir, by a Gland? & what is their Structure —

What is your Reasons Sir for supposing that the Glands are vascular? —

I shall next proceed Gent to make some remarks on Osteology & first the structure & composition of the bones

Lecture 5th

What do you mean by an Epiphesis?

Does an Epiphisis differ from an Apophesis?

What do you mean by the Neck of a bone?

you aught just to take Notice of the different Cavities, Some of wh are deep and as the accetabul-um & Some are very Superficial as the Glenoid Cavity - &c &c.....

What is meant by the term Enarthrosis?

What is meant by Ginglimus?

What do you understand from the term Gomphosis?

What is a Suture?

What do you understand by Synarthrosis?

What do you mean by Sanchondrosis?

The bones, altho a very hard substance are most apt to change its figure and accommodate itself to the Shape of the soft parts - Instances of this may be seen in every part of the human body. as the depressions made in the internal plate of the Cranium by the convolutions of the soft brain blood vessels &c

the Blood vessels Muscles & glands, all make depressions in the cylindrical as well as broad bones - and any Tumor in the soft parts have the same effect if it make any pressure upon the bone -

I once knew a child in this City who had a remarkable prominent forehead, wh was removed by wearing a Compress ~~about 2 years~~ filled with sand and in about 2 years was restored to a perfect natural shape —

I come next gentlemen, to that a part of Lectures wh will be more agreeable, wh is to consider the particular parts of osteology - and 1st we shall consider the Head I wish you gent to very particular as to the Osteology of the Cranium as some of the most important operations in Surgery are performed on the Head. fractures of the Cranium are very common and it important that the Surgeon is well acquainted with the parts that he may be able to judge the extent of the fracture, and there are very important blood Vessels & Nerves wh pass ~~from the~~ it wh are best learned by a particular attention to the osteology of the Cranium -

Dr Winter - next observed the difference in the Shape of different Skulls as that of the African differing from the European &c &c - Some of those differences are owing to artificial causes for Instance the Turks wear a Turban round their heads wh makes their heads much rounder than the Europeans -

He next observed that the Cranium was divided into Eight bones 6 proper & 2 Common to the Cranium & face - he then demonstrated the Sutures - observing that there were vessels passing from the internal

internal parts of the cranium to the teguments of the head more particularly through the sutures wh he wishes his pupils to remember as they are very important in relieving affections of the Brain - "I once knew a man who was affected with a sense of tightness in the head so much, that in the morning as to produce a complete vertigo when he awoke and rose from his bed he was entirely insensible of the place where he was when in his own bed Chamber - he was bled largely - & had repeated cathartics & traveled on foot 40 miles in a day to open perspiration and equalize the circulation all without relief of his complaint he came to town & I applied cupping to the cranium and he was relieved by the first operation and he has always since been relieved in the same way when he felt an approach of the same complaint" ——

Dr W. says he cannot account for this connection but such is the fact

a man was riding on his waggon near Sandyhill
in the Month of Octr. He all at once was seized with
pain in one of his Eyes, he said he had got some thing
into it. I examined but could see nothing – the inflamn
became violent and lasted 2 or 3 weeks – I did not
attend him but saw him 2 weeks after the infln as
violent as at first but not so painful. – I think there
was a slight ulceration on the Cornea.

2

When the Muscles become Small and Flacid
apply flannel Rollers and Rub the parts
Smartly 3 or 4 times each day with
warm Salt water — & Liniment —

In Lumbago & Sciatica Rheumatism
apply Steam to the part by pipes leading
from a ~~bil~~ boiler — Electricity —
Rub in Some of the Stimulating Liniment
while Steaming then roll the parts in flannel

Remedies for Rheumatism Chronic

℞ Tinct Lytae .... ℥ss. or ℥j
... Compsit ... ℥iss.
Vol Linament .... ℥ij.

form the whole into a linament and
Rub the effected part 2 or 3 times a day.

Obstinate Cases have been cured by wrapping
in large quantity of Flannel and walk
sufficient every day to produce Sweating.
See Scudmore on Gout & Rheumatism
page 313.

Strammonium & Lactucarium
combined peculiarly useful in when
the pains are wandering combined with
Lumbago

RUSH'S

LECTURES

2